



**SMALL SCALE INDUSTRY
ANALYSIS & PLANNING REPORT
No. 25**

**COTTON TEXTILE
MACHINERY SPARE PARTS
INDUSTRY**

**DEVELOPMENT COMMISSIONER
(SMALL SCALE INDUSTRIES)
MINISTRY OF COMMERCE & INDUSTRY
GOVERNMENT OF INDIA, NEW DELHI**

LIST OF SMALL SCALE INDUSTRY ANALYSIS & PLANNING REPORTS

1. Sports Goods (Northern Region).
2. Sewing Machine & Parts (Northern Region).
3. Bicycles & Parts (Eastern Region).
4. Leather footwear (Northern Region).
5. Automobile Batteries (All India).
6. Bicycle Ricksha Parts Industry in Bihar.
7. Boot Polish (Western Region).
8. Boot Polish (All India).
9. Cotton Textile Machinery Spare Parts (All India).
10. Hosiery Industry (All India).
11. Electric Brass Lamp Holders (All India).
12. Surgical Instruments (All India).
13. Padlocks (Northern Region).
14. Glass Beads (Northern Region).
15. Glass Scientific Apparatus (Northern Region).
16. Agricultural Implements (Southern Region).
17. Automobile Leaf Springs (All India).
18. Industrial Fasteners (Eastern Region).
19. Glass Beads (Eastern Region).
20. Wood Screws, Wire Nails & Panel Pins (Eastern Region).
21. Diesel Engines (Stationary Type) (Eastern Region).
22. Domestic Utensils Industry (Western Region).
23. Agricultural Implements (Northern Region).
24. Beam Scales (Northern Region).
25. Agricultural Implements (Western Region).
26. Glass Bangles (Southern Region).
27. Centrifugal Pumps (Southern Region).
28. Builders' Hardware (Northern Region).
29. Builders' Hardware (Western Region).
30. Diesel Engines and spare parts (Stationary Type) (Western Region).
31. Wood Screws, Wire Nails and Panel Pins Industry (Western Region).
32. Builders' Hardware (Southern Region).
33. Padlocks (Eastern Region).
34. Hand Tools (Southern Region).
35. Bicycles and parts (Southern Region).
36. Agricultural Implements (Eastern Region).
37. Hand Tools (Western Region).
38. Bicycles and parts (Eastern Region).
39. Bicycles and parts (Western Region).

(Continued on Inside Back Cover)

SMALL SCALE INDUSTRY ANALYSIS
AND PLANNING REPORT NO. 25

COTTON TEXTILE MACHINERY SPARE PARTS INDUSTRY



DEVELOPMENT COMMISSIONER
(SMALL SCALE INDUSTRIES)
MINISTRY OF COMMERCE & INDUSTRY
GOVERNMENT OF INDIA, NEW DELHI

NOTE:—*Material from this publication may be reproduced whole or part without permission, provided it acknowledged.*

INTRODUCTORY NOTE

A survey of small scale units manufacturing Cotton Textile Machinery Spare Parts was undertaken by the Economic Investigation Teams of the Small Industries Service Institutes, Bombay and Madras, during July—September 1957.

The Small Scale Cotton Textile Machinery Spare Parts Industry is mainly concentrated at Ahmedabad, Bombay, Bangalore and Coimbatore. It is estimated that there were 447 small scale manufacturing units in the country in 1956, accounting for an output of Rs. 3 crores worth of textile machinery parts and providing employment to about 5,500 persons. Small Scale units manufacture all type of spinning frame parts and loom parts. They are able to withstand competition from large scale units in respect of the majority of parts, notable exceptions being spinning rings, spindles, fluted rollers, inner tubes and ball-bearing inserts. Import of spare parts, however, is still quite significant, amounting to about 44 per cent of the estimated annual consumption.

It is estimated in the report that the demand for loom parts would increase by 9 per cent and for spinning parts by 17·4 per cent during the period 1956—61. Indigenous production of textile machinery parts could be increased not only to meet the expected increase in demand but also to replace imports to a considerable extent. The recommendations made in the report are designed to bring about such improvements in the techniques, supply of raw materials, marketing arrangements, etc., as would lead to progressive development of this small scale industries.

ASHFAQUE HUSAIN,
Development Commissioner
(SMALL SCALE INDUSTRIES)

Dated 1st December, 1957.

COTTON TEXTILE MACHINERY SPARE PARTS INDUSTRY

CONTENTS

Pages

SUMMARY OF INDUSTRY PROSPECTS AND RECOMMENDATIONS	1—6
Industry Prospects	1
Recommendations	3
I INTRODUCTION	7—12
Scope of the Survey	7
Method of the Survey	8
II DESCRIPTION OF THE PRODUCTS	12—14
Nature and uses of the products	12
Process of manufacture	13
III GROWTH AND PRESENT STATUS OF THE INDUSTRY	14—45
Growth of the industry	14
Structure of the Industry	16—22
Statistics of the Industry	22—45
All India position	22
No. of units	25
Employment	28
Capacity and production	31
Investment	37
Investment, employment and production averages and ratios	43—45
IV DEMAND OUTLOOK	45—62
Factors governing demand	45
Consumption	46
Production of small-scale units	46
Production of large-scale units	46
Imports	47
Estimated annual consumption by mills	49
Regionwise and Statewise estimate of consumption	53

	Pages
Future Demand	55
Trends in past consumption	56
Likely trend in the production of small-scale units	59
Likely trend in the production of large-scale units	59
Trend of imports	61
V COMPETITIVE OUTLOOK	63-69
Large-scale Vs. Small-scale	63
Competition among states	64
Inter-regional competition	65
Indigenous products Vs. imports	66
Feeling in the industry	69
VI EMPLOYMENT OUTLOOK	70-76
Present employment	70
Proportion of skilled and unskilled workers	71
Wage rates	72
Availability of new skills	73
Employment outlook	74
VII PROBLEMS AND RECOMMENDATIONS	77-90
Government policy relating to the industry	77
Raw materials	78
Technique of production	80
Marketing	83
Sub-contracting	83
Industrial estates	84
Finance	86

LIST OF APPENDICES

APPENDIX 'A'	Questionnaire for Survey of Textile Machinery Parts Industry	91-93
APPENDIX 'B'	A Tentative List of High Mortality Parts used in spinning, Weaving and Preparatory Departments	94-95
APPENDIX 'C'	List of Small-Scale Manufacturers of Textile Machinery Parts in the Western, Southern and—Eastern Regions	96-111
APPENDIX 'D'	Distribution of Installed Looms and Spindles and Their Utilisation according to Regions	112-113
APPENDIX 'E'	Tentative List of Items Required by Large-Scale Manufacturers of Textile Machinery	114-117
APPENDIX 'F' (i)	Textile Machinery Spare Parts for which no licences will be granted during October 1957—March 1958	118-119
	(ii) Textile Machinery Parts for which licences will be granted to Established Importers during October 1957—March '58	120-123

	Pages
(iii) Textile Machinery Parts for which licences would be granted to Actual Users during October 1957-March 1958	124—131
APPENDIX 'G' List of Textile Machinery Spare Parts produced by Small-Scale units which are found below the standard of quality expected by users.	132—133
APPENDIX 'H' Borrowings of Small-Scale Units (Western Region)	134—137
APPENDIX 'I' Credit Requirements of Small-Scale Units (West- ern Region)	138—141

NOTE ON THE RATING SYSTEM FOR INDUSTRIES

Rating A—Excellent prospects. The Small Industries Service Institute can go all out to encourage technical improvement and expansion with confidence that effects will be beneficial.

Rating B—Moderately good prospects or good prospects with special circumstances (for example large numbers of household producers whom it may be difficult to bring into technical improvement schemes). The Small Industries Service Institute should do all it can to help the Industries, but care will be required to ensure that beneficial effects in one sector are not offset by harmful effects elsewhere.

Rating C—Poor prospects. The Small Industries Service Institute should assist firms in an industry with this rating to switch to other products and should assist labour to transfer to other occupations.

COTTON TEXTILE MACHINERY SPARE PARTS INDUSTRY

SUMMARY OF INDUSTRY PROSPECTS AND RECOM- MENDATIONS

INDUSTRY PROSPECTS

General Rating

This industry is rated as 'B', in the Western and the Southern Regions. Care would be required to see that the expansion of the industry in the Southern Region is coordinated with the developments in the Western Region and the small-scale units in both regions take increasingly to production of items at present being imported. Adequate data for rating the industry in the Eastern Region (where textile machinery parts are produced against orders by small-scale and large-scale engineering concerns) and in the Northern Region (where they are not produced in any significant quantities) are not available.

The industry is well-suited for production on a small-scale basis except for certain spinning parts requiring precision equipment. It has moderately good prospects so far as demand is concerned but it would need a proper supply of raw materials, technical guidance, finance and marketing organisation for its further development, so as to bring the quality of parts produced by small-scale units in India upto the standard of imported parts. The latter amount to about 44 per cent of the estimated annual consumption (domestic production plus imports) of cotton textile machinery parts in India.

(Paras 106 & 107, 150 to 182)

Demand Outlook

The demand for loom parts is expected to increase by 9 per cent and for spinning frame parts by 17.4 per cent over the period 1956-61, on the basis of expected increases

in loomage and spindlage. The estimated annual consumption of cotton textile machinery parts by the mill and power loom sectors may be expected to increase from Rs. 517 lakhs in 1956 to Rs. 594 lakhs in 1961.

(Paras 106 to 108)

Employment Outlook

Employment for production of textile machinery parts in the small-scale sector is expected to increase by about 15 per cent in the Second Plan period. The estimated all-India employment, directly engaged in the production of textile machinery parts in the small-scale sector, is expected to rise from about 5,589 workers in 1956 to 6,427 workers in 1961.

(Paras 142 to 147)

Competitive Outlook

The competition faced by the small-scale sector from the large-scale sector is mostly in respect of spinning ring spindles, fluted rollers, inner tubes and ball bearing inserts. However, for a majority of loom parts, the small-scale units do not face any significant competition from large-scale units. There is not much of inter-State competition within each of the four regions. The small-scale units in the Western Region predominate in the field of inter-regional competition over those in the Southern and Eastern Regions. Competition from imported parts is practically non-existent in the case of items such as spindles, fluted rollers, tin rollers and top rollers (excepting the ball bearing varieties) as their imports are banned. Whenever textile mills have a choice between imported and indigenous spare parts they tend to prefer the former on grounds of higher durability and accuracy. Competition between indigenous and imported items has been restricted by a monetary ceiling on the imports of spares and accessories since January 1957 as also by special conditions, favourable to the domestic industry, for imports of certain items for 'conversion' and spare parts for finishing equipment.

(Paras 114 to 126)

RECOMMENDATIONS

Government Policy

1. A list of spare parts which can be made by small-scale units but which are not being made at present, should be drawn up by the Small Industries Service Institute, Bombay in consultation with the Textile Commissioner, the Director of Industries, Bombay, the mill-owners' associations and the manufacturers of spare parts.

(Para 149)

2. Additional items for complete ban on imports should be recommended to the Chief Controller of Imports and Exports, by stages, for such parts which are found to be produced within India in adequate quantities and upto the required quality standards.

(Para 149)

Raw Materials

3. The Department of Industries, Government of Bombay, should encourage the formation of one representative association of small-scale manufacturers at Ahmedabad for the purpose of making bulk purchases of pig iron, steel, C. I. scrap and coke and distributing them among its members. The Department of Industries, Bombay, should assist this association by allocating quotas and permits for these raw materials.

(Para 154)

4. The Small Engineering Cooperative Society at Indore and the Iron and Steel Cooperative Society at Bangalore should be assisted, financially and otherwise, by their respective State Governments to play a more active and extensive role, than in the past, in the distribution of controlled raw materials to their members.

(Para 155)

5. The Southern India Engineering Manufacturer's Association should be similarly assisted by the Department of Industries, Government of Madras in undertaking bulk

purchase and distribution of raw materials to member-units.

(Para 156)

Technique of Production

6. The Institute Workshops at Bombay, Bangalore and Indore and Facility Centre at Ahmedabad should be established as soon as possible to help the small-scale units there to improve the quality of the spare parts made by them.

(Para 158)

7. An officer with special knowledge of textile machinery and spare parts should be appointed for the facility centre at Ahmedabad.

(Para 158)

8. A list of important and essential parts, made by small-scale units, requiring improvement in quality, should be prepared by the Small Industries Service Institutes, Bombay and Madras in consultation with all interests concerned.

(Para 160)

9. Steps should be taken for improvement in the quality of such parts by standardisation of important parts; working drawings for such parts should be prepared by the Small Industries Service Institutes, Bombay and Madras, and supplied to small-scale units.

(Para 160)

10. After the list of additional textile machinery parts which can be taken up for manufacture by small-scale units is finalised (recommendations), the Small Industries Service Institutes, Bombay and Madras, should take steps to encourage their manufacture by small-scale units. Working drawings and instructions regarding the correct process of manufacture and equipment for producing such parts should be made available to small-scale units along with financial assistance by the appropriate agencies.

(Para 162)

11. The Small Industries Service Institute, Madras, should persuade the foundries in Southern Region to adopt the recommendations made by the T.C.M. Foundry Technologist Mr. John Schnur, for improving foundry techniques. The Institute should depute its technical officers for this purpose to the important centres of production like Trichur, Coimbatore and Madurai.

(Para 163)

Marketing

12. The small-scale manufacturers at Ahmedabad, Bombay, Indore, Bangalore and Coimbatore should be encouraged by their respective State Governments to arrange for joint marketing either through a representative association or existing cooperative societies. Alternatively, they may be encouraged to form new marketing cooperatives if the existing associations or societies are not found to be working satisfactorily.

(Para 166)

Sub-contracting

13. The large-scale manufacturers of complete textile machinery may be requested to finalise at an early date their estimated annual requirements of components, which they are willing to buy from small-scale units so as to enable the National Small Industries Corporation to take further steps to encourage the production of such items by ancillary units.

(Para 167)

14. The Textile Commissioner may be requested to examine the feasibility of persuading manufacturers of power-looms to come to working arrangements with the National Small Industries Corporation for sub-contracting the production of some components to small-scale units. For power-looms to be licensed by the Textile Commissioner, under the programme of 'conversion' of handlooms as recommended by the Textile Inquiry Committee (1954), the feasibility of laying down a minimum limit to the

value of such components as a percentage of the total cost of each loom, may be examined.

(Para 168)

15. The Small Industries Service Institutes at Bombay and Madras should give the necessary technical assistance to enable small-scale units to take up the production of components.

(Para 169)

Industrial Estates

16. Early steps may be taken by the Ahmedabad Municipal Corporation to undertake the construction of the proposed industrial estate at Ahmedabad.

(Para 171)

17. Till the estate gets ready, action on the notices served on some of the concerns to shift their factories to non-residential areas, may be deferred by the Ahmedabad Municipal Corporation.

((Para 171)

Finance

18. The State Bank of India may be requested to issue instructions to their Agents, or other officers, at Ahmedabad, Bombay, Bangalore and Indore to examine sympathetically working capital requirements of small-scale units engaged in this industry at these places and to provide the necessary short-term finance to credit-worthy units.

(Para 182)

INTRODUCTION

SCOPE OF THE SURVEY

1. Definition of the Industry.—The units engaged in the production of spare parts for cotton textile machinery constitute a light engineering industry. This survey covers cotton textile machinery parts made of metal by foundries and machine shops. It excludes wooden parts such as picking sticks and porcelain items, used in the textile industry and also accessories such as pickers, bobbins and shuttles. It was decided to restrict the scope of the survey to metal parts only in the first instance and to take up for study the accessories making industry at some later date. Some items excluded from the survey such as pickers, bobbins and shuttles are quite important from the point of view of the textile industry but the prospects and problems of the units engaged in the production of these accessories are not entirely similar to those of the units making metal parts. Hence, it was felt that the small-scale units making leather and wooden accessories for the cotton textile industry should be covered by a separate survey.

2. The report discusses the present position and problems of small-scale units supplying textile machinery parts as defined above, particularly in the Western Region and Southern Region. Rough estimates of production of spares parts in the Eastern Region were also available. No small-scale units producing textile machinery parts exist in the Northern Region, although there are 3 small-scale units producing preparatory and finishing equipment for the textile industry. The survey does not take into account loom parts made by large-scale manufacturers of textile machinery, the production of which is normally restricted to meet the replacement demand from users of the original equipment supplied by them.

3. As far as production is concerned, all the metal parts of machinery used in the cotton textile industry (including parts for preparatory and finishing processes) and produced by the units visited for the survey, were taken into account. However, for the discussion on current consumption and demand prospects, it was decided to concentrate on parts required for looms and spinning frames.

4. For the purposes of the survey, a small-scale unit has been defined as a unit having investment in fixed assets not exceeding Rs. 5 lakhs and employing not more than 50 workers with power or 100 workers without power.

METHOD OF SURVEY

5. **Western Region.**—Names and addresses of foundries and workshops reported to be producing textile machinery parts either as their main or side business, were obtained from the Departments of Industries of the State Governments in the Western Region. Information regarding units not registered under the Factories Act, was obtained from associations of manufacturers as well as from the State Government departments receiving applications for the allocation of pig iron and steel. At Bombay, Indore, Ujjain and Ratlam, all the units reported to be in existence were contacted. It was reported that many small workshops at Bombay doing miscellaneous job work in light engineering also make small quantities of textile machinery parts against casual orders. Such units, however, were not covered.

6. The field investigation at Ahmedabad was divided into two stages. In the first round, a sample of 43 concerns was drawn from a list of 104 units which were covered a year ago by a technical survey of small-scale engineering units at Ahmedabad conducted by Small Industries Service Institute, Bombay and also by an earlier survey of textile and general machinery parts industry conducted by the economic investigation team of the Institute. This sample was drawn so as to cover all the

ranges of employment and investment to which these 104 units belonged. The units selected for the sample represented 59 per cent of investment and 54 per cent of employment of the 104 units. For the second round, a list of additional 145 small-scale units reported to be manufacturing textile machinery parts at Ahmedabad was prepared from information supplied by the Department of Industries, Government of Bombay, on the basis of applications received by them from Ahmedabad for allocation of pig iron and steel. An attempt was made to contact all these units and to obtain basic information concerning their year of establishment, investment, employment, capacity, production, existing borrowings and credit requirements. It was not possible to visit isolated units at some places in the Bombay State.

7. Thirty out of thirty-eight units were visited at Bangalore in consultation with the State Department of Industries and the Department of Rural Industrialisation, Bangalore.

8. The detailed analysis of coverage according to different centres is shown in Table I on the following page. It would be observed from this table that 254 units out of 329 units reported to be making textile machinery parts, were contacted. Information was available from 154 units. Twenty-six units making textile machinery parts did not supply information. The number of units found to be either closed or not traceable or not making textile machinery parts amounted to 74 of which 64 were reported to be located at Ahmedabad. (A copy of the questionnaire used for the survey is attached as Appendix 'A'.) Excluding workshops attached to textile mills and small-scale general engineering concerns producing textile machinery parts against casual orders. According to information subsequently received the total number of small-scale units making textile machinery parts has been estimated at 400.

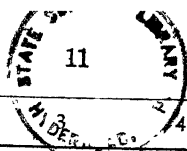
9. For ascertaining various facts regarding demand for textile machinery parts, important dealers at Bombay,

Ahmedabad and Bangalore were contacted. Further, information was collected from three cotton mills at Bombay and three at Ahmedabad on their purchases and consumption of spare parts in 1955 and 1956 from the records maintained by the mills. These mills were selected in consultation with the Office of the Textile Commissioner, Bombay. Various official publications were also consulted for obtaining data regarding number of looms and spindles, number of shifts worked by all the cotton textile mills in India and import policy regarding cotton textile machinery and spare parts. The shows-rooms of large-scale units manufacturing textile machinery at Bombay were visited by the members of the investigation team to familiarise themselves with various spinning frame and loom parts.

TABLE I

COVERAGE OF SMALL-SCALE UNITS MANUFACTURING COTTON TEXTILE MACHINERY PARTS IN THE WESTERN REGION (1957)

<i>State & Centre</i>	<i>No. of units according to State Industries Depts. & Private sources.</i>	<i>No. of units contacted</i>	<i>No. of units which supplied information</i>	<i>No. of units from which information was not available</i>	<i>Other (i.e. closed, not traceable or not making textile machinery parts)</i>
I	2	3	4	5	6
<i>Bombay</i>					
(1) Bombay	23	23	15	5	3
(2) Ahmedabad (a)	103	43	35(a)	6	2
(b)	145	145	68	15	62
Total : Ahmedabad	248	188	103	21	64
(3) Ichalkaranji	1	..	..	..	..
(4) Sholapur	1	..	..	..	..
(5) Kalol	1	..	..	..	..
(6) Surat	1	..	..	..	..
(7) Baroda	3	..	..	..	..
I—Total : Bombay State.	278	211	118	26	67



I	2	3	4	5	6
<i>Madhya Pradesh</i>					
(8) Indore . . .	9	9	9	..	..
(9) Ujjain . . .	3	3	3	..	..
(10) Ratlam . . .	1	1	..	..	1
II—Total : Madhya Pradesh	13	13	12	..	1
<i>Mysore</i>					
(11) Bangalore . . .	38	30	24	..	6
Grand Total :	329	254	154	26	74
Western Region (I + II + Bangalore)					

(a) Seven of these gave incomplete information and therefore, are excluded from the tables showing employment, capacity, production and investment.

Southern Region

10. The data for the industry in the Southern Region was also obtained through field investigation on the usual lines. The number of small-scale units reported to be in existence and the number of units surveyed in the Southern Region are shown in Table II.

TABLE II

COVERAGE OF SMALL-SCALE UNITS MANUFACTURING TEXTILE MACHINERY PARTS IN THE SOUTHERN REGION (1957)

<i>State & Centre</i>	<i>No. of Units in Existence</i>	<i>No. of Units surveyed</i>
<i>Madras</i>		
(1) Coimbatore . . .	26	22
(2) Madurai . . .	2	2
Sub-Total : Madras State . . .	28	24
<i>Kerala</i>		
(3) Trichur . . .	2	2
Grand Total : Southern Region	30	26

11. Two units making wooden parts at Madurai and one unit attached to a local textile mill at Trichur have not been included in the survey. The units at Coimbatore include six machine-shops which mainly do job-work. Information was also obtained from two large-scale units in Southern Region, which manufacture textile machinery parts was obtained through various official and private sources. One large-scale units making complete textile machinery, was also approached for their requirements of components from small-scale units.

Eastern Region

12. It was reported that there were nine large-scale and 17 small-scale engineering workshops in the Eastern Region producing textile machinery parts against orders. Estimates of their production of textile machinery parts were obtained through knowledgeable sources.

II—DESCRIPTION OF THE PRODUCTS

NATURE AND USES OF THE PRODUCTS

13. Parts covered in the survey can be broadly grouped under those pertaining to (a) spinning frames (b) winding and preparatory equipment parts (c) loom parts including accessories such as dobbies (d) parts pertaining to finishing and processing machinery. The loom parts can be further divided into the following groups i.e., parts connected with (a) driving motion (b) shedding (c) picking and brake (d) sley and beating (e) crank arm (f) beam and let-off motion (g) take-up motion, and (h) temple and weft-fork attachment.

14. It is also possible to divide the parts included in the survey into cast iron parts (including machine-cut gears), mild steel parts, spring steel and other alloy steel parts, gun metal parts and wooden parts (mainly for looms). Further, a broad division can also be made as between parts which do not bear much friction and those which wear out relatively quickly as they bear the brunt of the working of

the machinery. A tentative list of the parts subject to substantial wear is shown in Appendix 'B'.

15. The use of the parts included in the survey is for replacement of worn-out parts to maintain the efficiency of the working of the textile machinery. Actual consumption of spare parts by cotton textile mills will depend upon various factors such as the standard of maintenance of machinery in the mills, the quality of the parts purchased, the importance attached by the mills to replacements of parts, the age composition of the machinery in use and the extent of utilisation of the equipment as reflected by average number of loom-shifts and spindle-shifts worked during a given period.

PROCESS OF MANUFACTURE

16. Most loom parts are made of cast iron and, therefore, casting and machining are the process required for producing them. A majority of the manufacturing units use pit furnaces for foundry work. The nature of machining varies according to the nature of the parts manufactured. Some parts may require close attention in the course of machining, on operations such as correct centre adjustments, true planning and shaping and cutting of teeth on various types of gears and wheels. Production of steel parts involves shaping operations from mild steel in the case of shafting and from spring steel in the case of various types of springs used in the looms.

17. Almost all the parts of spinning equipment need precision work. Rings have to be properly turned and case-hardened from forged steel. Ring travellers also require to be prepared from a special type of steel. The process of manufacture is also somewhat intricate for the production of spindles (including warf and bolster made of cast iron) and ball bearing inserts. Spindle steel bars are to be cut in proper size and tapered before the application of hardening processes. The hardness and trueness of the blade is then tested. The blades are then passed on many grinders for getting different angles and

tapers in successive operations. This is followed by the assembly of blades and warf and bolsters and inner tubes. Whereas most of the loom parts can be made by small-scale units, only some of the spinning frame parts can be made by them.

III—GROWTH AND PRESENT STATUS OF THE INDUSTRY

GROWTH OF THE INDUSTRY

Western Region

18. The distribution of small-scale units according to year of establishment is shown in Table III on the following page. Amongst the existing units, the earliest to be established were those at Ahmedabad, two during 1880-1900 and three during 1901-1914. This was followed by the establishment of two units at Bombay and one at Ahmedabad during 1915-1919. As against eight units established up to 1919 in the region, 26 units were established during 1920-1939. The tremendous improvement in the demand prospects for the industry during the Second World War period, resulted in the establishment of 34 new units during 1940-45. The momentum gathered by the industry during the World War II, resulted in its further growth at an accelerated rate during the next five years *viz.*, 1946-1950, when 50 additional units were established in the region. Ahmedabad continued to lead in respect of number of units, as 31 new units came into existence there in this period. The industry developed further during the First Plan period, though not at the same rate as in the previous five years.

19. It would be observed from Table III that of the 154 units included in the survey, 120 came into existence from 1940 onwards. Amongst the different periods shown in the table, the largest number of units was established during 1946-1950, both in the region as a whole as well as at all the centres except Ujjain. The growth of the industry has shown a definite tendency of concentration at

the centres of the cotton textile industry and has been stimulated in the post-war years by various factors such as higher prices of imported spares, control on imports on account of foreign exchange difficulties and protection granted to certain items of textile machinery and parts thereof since 1949.

TABLE III
DISTRIBUTION OF SMALL SCALE UNITS ACCORDING TO YEAR OF ESTABLISHMENT (WESTERN REGION)

State & Centre	Units established during									
	1880-1900	1901-1914	1915-1919	1920-1939	1940-1945	1946-1950	1951-1956 1st plan period	April 1956 on- wards 2nd plan period	Total	
I	2	3	4	5	6	7	8	9	10	
<i>Bombay</i>										
(1) Bombay	.	..	..	2	2	3	6	2	2	15
(2) Ahmedabad	.	2	3	1	19	23	31	22	2	103
SUB-TOTAL	.	2	3	3	21	26	37	24	2	118
<i>Madhya Pradesh</i>										
(3) Indore	.	..	..	..	1	2	4	2	..	9
(4) Ujjain	.	..	..	..	1	..	..	2	..	3
SUB-TOTAL	.	..	..	..	2	2	4	4	..	12
<i>Mysore</i>										
(5) Bangalore	.	..	..	..	3	4	9	7	1	24
GRAND TOTAL (Western Region).	.	2	3	3	26	32	50	35	3	154

Source : Information supplied by manufacturing units during field investigation.

Southern Region

20. The distribution of small-scale units in the Southern Region according to years of establishment, is shown in Table IV.

TABLE IV

DISTRIBUTION OF SMALL-SCALE UNITS ACCORDING TO YEARS OF ESTABLISHMENT (SOUTHERN REGION)

	Units established during					
State & Centre	1940-45	1946-50	1951-56 First Plan period	April 1956 onwards 2nd Plan period	Total	
I	2	3	4	5	6	
<i>Madras</i>						
(1) Coimbatore .	1	4	13	4	22	
(2) Madurai .	..	..	2	..	2 (a)	
Sub-Total .	1	4	15	4	24	
<i>Kerala</i>						
(3) Trichur .	2 (b)	..	..	..	2	
Grand Total : (Southern Region)	3	4	15	4	26	

(a) Excluding 2 units making wooden parts.

(b) Excluding 1 unit attached to the Textile Mill.

Source : State Directorate of Industries and Field Investigation.

21. It would be observed from Table IV that the growth of the industry is concentrated at Coimbatore which is the most important centre of cotton textile industry in the Southern Region. Almost all the units making textile machinery parts in the Southern Region at present, were established from 1940 onwards. Of the 26 units in the Southern Region included in the survey, the earliest to be established were one at Coimbatore and two at Trichur during 1940-45. Four units were established at Coimbatore in 1946-50. The major development of the industry in the Southern Region took place during the First Plan period when 15 new units were established out of which 13 were at Coimbatore and two at Madurai. During the Second Plan period, four additional units were established at Coimbatore.

22. There are 9 large-scale units excluding the manufacturing looms only in the textile machinery industry which manufacture parts for direct sales. Six of them are in the Northern Region, two in Southern Region and one in Eastern Region. Besides, these, 2 large-scale general engineering concerns in Western Region, 2 in Southern Region and 7 in Eastern Region also produce textile machinery parts against orders.

23. Of the 147 small-scale units in the Western Region included in the survey, 80 manufacture textile machinery parts only, whereas 67 are general foundries and engineering workshops making textile machinery parts along with various other items such as small tools, railways equipment and castings for various other machinery, apart from production Ambar Charkha parts adopted by some units during the last one year or so. The centre-wise position of units manufacturing textile machinery parts only and those units making them along with other items is shown in Table V below.

TABLE V

CENTRE-WISE DISTRIBUTION OF SMALL-SCALE UNITS ACCORDING TO PRODUCTS (WESTERN REGION)

State & Centre	No. of Units making		Total
	Textile Ma- chinery Parts only	Textile Ma- chinery & other items	
<i>Bombay</i>			
(1) Bombay . . .	8	7	15
(2) Ahmedabad . . .	60	36	96
Sub-Total . . .	68	43	111
<i>Madhya Pradesh</i>			
(3) Indore	1	8	9
(4) Ujjain	..	3	3
Sub-Total	1	11	12
<i>Mysore</i>			
(5) Bangalore	11	13	24
Grand Total : Western Region	80	67	147

: Source : Information supplied by manufacturing units during field investigation.

24. It will be observed from Table V that whereas 60 out of 96 units at Ahmedabad specialise in textile machinery parts, at other centres the number of general workshops also producing textile machinery parts is nearly equal to or more than the number of units specialising in textile machinery parts only.

25. In the Southern Region all small-scale units are general foundries and workshops manufacturing textile machinery parts as one of their items of production, some other important items being spare parts for other machinery, such as rice huller shafts, rotary oil mill expeller wheels, centrifugal pumps, electric motors and automobile parts. They also undertake a lot of repair work.

26. An attempt has also been made to classify the small-scale units included in the survey according to their specialisation in particular groups of textile machinery parts. The centre-wise distribution of small-scale units according to such specialisation is shown in Table VI.

TABLE VI
CENTREWISE DISTRIBUTION OF SMALL-SCALE UNITS ACCORDING
TO THE CATEGORY OF PARTS MANUFACTURED BY THEM
(WESTERN REGION)

	No. of Units mainly making						
	Loom Parts	Spinning frame parts	Loom & Spinning frame Parts	Parts for processing machinery	Gears wheels & pulleys	Miscel laneous	Total
<i>Bombay</i>							
(1) Bombay	5	4	3	..	2	1	15
(2) Ahmedabad	21	10	35	4	9	17	96
Sub-Total	26	14	38	4	11	18	111
<i>Madhya Pradesh</i>							
(3) Indore .	3	1	2	..	1	2	9
(4) Ujjain .	1	..	..	..	..	2	3
Sub-Total	4	1	2	..	1	4	12
<i>Mysore</i>							
(5) Bangalore	7	2	..	..	..	15	24
Grand Total	37	17	40	4	12	37	147

Source : Information supplied by manufacturing units during field investigation.

27. It will be observed from Table VI that it was not possible to classify 37 units according to their specialisation because they produce a number of different items without specialising in any particular group of items. Nearly two-thirds of the units in the Western Region specialise in loom and spinning frame parts and accessories; of these, 37 reported that the major portion of their output consisted of loom parts, 17 stated that spinning frame parts were their main speciality and 40 claimed that both loom and spinning frame parts could be considered as their

specialities. However, some of them also make components for preparatory, winding and processing machinery. Twelve units specialise in production of pulleys, wheels and gears on various typee required for looms and spinning parts. Only four make various components for dyeing, bleaching and other finishing equipment. Some units at Ahmedabad making parts for conversion equipment for spinning sections, are included in the units making parts for looms and spinning equipment.

28. Information regarding the organisation of small-scale units was available for 86 units in the Western Region. It was found that 57 units were registered under the Factories Act and 29 were not so registered. Further, 45 of the 86 units were proprietary concerns, 38 partnership concerns and only three limited concerns. The centre-wise position of the organisation of the units is shown in Table VII.

TABLE VII

ORGANISATION OF SMALL-SCALE UNITS MAKING TEXTILE MACHINERY PARTS (WESTERN REGION)

State & Centre	Total No. of Units	I No. of Units		II No. of Units		
		Regd. under Facto- ries Act	Not Regd. under Facto- ries Act	Proprie- tory	Partner- ship	Limited Cos.
<i>Bombay</i>						
(1) Bombay	15	13	2	4	9	2
(2) Ahmedabad	35	24	11	17	18	Nil
Sub-Total	50	37	13	21	27	2
<i>Madhya Pradesh</i>						
(3) Indore	9	3	6	6	3	Nil
(4) Ujjain	3	3	Nil	Nil	2	1
Sub-Total	12	6	6	6	5	1
<i>Mysore</i>						
(5) Bangalore	24	14	10	18	6	Nil
Total : Western Region	86	57	29	45	38	3

Source : Information supplied by manufacturing units during field investigation.

29. Of the 26 small-scale units in the Southern Region, 20 are registered under the Factories Act. Seventeen of 26 units are proprietary concerns, eight partnership concerns and only one limited company. The centre-wise details on organisation of the small-scale units in the Southern Region are shown in Table VIII.

TABLE VIII
ORGANISATION OF SMALL-SCALE UNITS MAKING TEXTILE
MACHINERY PARTS
(SOUTHERN REGION)

State & Centre	Total No. of units	I No. of Units		II No. of Units		
		Regd. under the Fac- tories Act .	Not Regd. under the Fac- tories Act	Proprie- tory	Partner- ship	Limited Cos.
<i>Madras</i>						
(1) Coimbatore .	22	16	6	14	7	1
(2) Madurai .	2	2	..	2	..	..
Sub-Total	24	18	6	16	7	1
<i>Kerala</i>						
(3) Trichur .	2	2	..	1	1	..
Grand Total (Southern Region)	26	20	6	17	8	1

Source :—Information supplied by manufacturing units during field investigation.

STATISTICS OF THE INDUSTRY

All-India Position

30. The position of the industry in the different regions and in the country as a whole is shown in Table IX on the following page.

TABLE IX

ALL INDIA AND REGION-WISE DISTRIBUTION OF THE NO. OF UNITS, CAPACITY, PRODUCTION, EMPLOYMENT AND INVESTMENT IN THE SMALL-SCALE COTTON TEXTILE MACHINERY PARTS MANUFACTURING INDUSTRY.

	<i>Western Region (Bombay, Madhya Pradesh & Mysore States)</i>	<i>Southern Region (Madras, Kerala & Andhra Pradesh States)</i>	<i>Eastern Region (W. Bengal, Bihar Orissa & Assam States)</i>	<i>Northern Region (Punjab, U.P. and Rajasthan States)</i>	<i>All-India</i>
1. No. of Units .	400	30	17	..	447
2. Capacity (Estimated for Textile Machinery Parts only) Rs. Lakhs	393.00	33.00	28.00	..	454.00
3. Production of Textile Machinery Parts Rs. lakhs . .	262.00	23.00	18.00	..	303.00
4. Employment (Estimated for Textile Machinery Parts only) .	4,716	543	330	..	5,589
5. Investment (Allotted for Textile Machinery Parts only) Rs.lakhs .	65.00	12.00	5.00	..	82.00

Source: Estimates from data collected during field investigation.

31. The figures of capacity, production, employment and investment are estimates with reference to production of textile machinery parts only. As a large number of small-scale units in the Western Region, and almost all in the Southern and Eastern Regions were found to be composite units making textile machinery parts along with various other items, it was necessary to allocate their composite capacity, employment, and investment to the production of textile machinery parts, on the basis of the break-up of their total production in 1956 as between textile machinery parts and other items. In the absence of

any other practicable method, this method was used to arrive at rough estimates of the employment and investment engaged in the production of textile machinery parts.

32. The capacity for the production of textile machinery parts by the small-scale units in the Western Region was estimated at Rs. 393.2 lakhs. This estimate was arrived at after estimating the capacity of 147 units in the Western Region for textile machinery parts, on the basis of the proportion of their production of machinery parts to the total production and projecting it to 400 units. Total production of textile machinery parts in the Western Region by small-scale units was projected from the figures available for 147 units. The estimates of employment and investment applied to the production of textile machinery parts in the Western Region were also worked out on the same basis as the estimate of capacity explained above.

33. The estimates of capacity, production, employment and investment in the Southern Region, allocated to the production of textile machinery parts were arrived at by projecting the available actual figures to 30 units. In the case of the Eastern Region, the only available figure was that of estimated production of textile machinery parts by small-scale units. Estimates of capacity, employment and investment for production of textile machinery parts in the Eastern Region were worked out by using the ratios of production of textile machinery parts respectively to estimated capacity, employment and investment, pertaining to the production of textile machinery parts, for the Western and Southern Regions combined.

34. It would be observed that the importance of the Western Region, as regards production of textile machinery parts is well depicted in Table IX. The Western Region accounts for about 87 per cent of capacity and production, 85 per cent of employment and 80 per cent of investment pertaining to the production of textile machinery parts on an All-India basis. The total production of textile machinery parts by small-scale units for the Southern Region is estimated to be Rs. 22.3 lakhs and in

the Eastern Region Rs. 18 lakhs. It may be noted that, besides, 17 small-scale units in the Eastern Region, there are 400 small workshops in industrial areas of West Bengal, taking occasional orders for production of textile machinery parts.

Regional Position

35. For depicting the All-India position of the cotton textile machinery spare parts industry, which constitutes a majority of units which are composite, estimates of number of workers entirely engaged in the production of textile machinery spare parts along with those for capacity, production and investment had to be built up on rough and ready basis, as already explained. For the detailed analysis for each region, its constituting States and different centres within the States, that basis has not been applied except to show a comparative overall picture for the region as obtained when such data in the case of composite units are taken for the region as a whole and when apportioned by us on the basis applied for building up All-India estimates. Besides, the detailed analysis relates only to the units covered under the survey and not to the total number of units existing within each region, state or centre.

Number of Units

All-India

36. The total number of units engaged in production of textile machinery spare parts wholly or partially comes to 447 for the country as a whole. Besides these, there are several general foundries and machineshops in the Western and Eastern Regions which manufacture textile machinery parts occasionally against orders.

Western Region

37. As shown in Table I, the number of small-scale units reported to be engaged in the manufacture of textile

machinery parts in the Western Region is about 400. In addition, however, there are about 70—80 small-scale units in Greater Bombay, operating as general foundries and/or machineshops which also manufacture textile machinery parts. On further enquiries, it was found that these units produce textile machinery parts, or do only the casting or machining part of the job, according to orders received by them from time to time. They do not produce textile machinery parts on a regular basis and do not maintain separate records of the work done by them in respect of textile machinery parts. Under the circumstances, they were not included for detailed field investigation.

38. About 35—40 textile mills in the Western Region have workshops attached to them, for regular production of spare parts to meet a part of their urgent or specialised requirements. In the course of informal discussions with the management of some mills, which were contacted for obtaining data on their purchase and consumption of spare parts, it was learnt that generally mills prefer to purchase the greater bulk of their requirements of spare parts from outside. As the production of such workshops in the Western Region meets a very small proportion of the demand for spare parts by the parent mills, it was not considered useful to include them in the survey.

39. In the *Southern Region*, there are 30 small-scale units manufacturing textile machinery parts. Twenty six of these are located at Coimbatore and two at Madurai in the Madras State. There are only two units in the Kerala State, which are located at Trichur. Apart from these units there are two units at Madurai, making wooden parts for looms and one unit at Trichur which is attached to a local textile mill.

40. There are no factories in the *Eastern Region* exclusively manufacturing textile machinery parts and components on a regular basis. However, 17 small-scale units,

mostly located in and around Calcutta, manufacture considerable quantities of spare parts for Cotton and Jute textile machinery against orders along with various other types of engineering items. Further, about 400 small-scale workshops, scattered throughout the industrial areas of West Bengal are also associated with production of textile machinery parts against orders along with the miscellaneous general engineering jobs performed by them. There are no manufacturers of textile machinery spare parts reported to be in the Northern Region.

41. The small-scale units engaged in the production of textile machinery parts can be grouped as (i) foundries supplying rough castings against orders or getting them machined from other machine shops on a job work basis (ii) machineshops and (iii) foundry-cum-machineshops. Amongst the 86* units included in the survey in the Western Region, the proportion of machineshops to foundry-cum-machineshops was nearly equal. Twenty seven of fifty units in Bombay State, seven out of twelve units in Madhya Pradesh State and nine out of 24 units at Bangalore are purely machineshops, drawing their supplies of castings from general foundries. Thus, the industry consists not only of self-contained units having both foundry and machineshops sections, but also of units with machining equipment which get castings from outside according to their requirements.

42. Of the 26 units in the Southern Region included in the survey, 20 are self-contained units having both foundry and machineshops and the remaining six (at Coimbatore) are purely machineshops doing job work on castings supplied by others.

43. It may be mentioned, that some of the units having both foundry and machineshops sometimes have to supplement their supplies of castings from outside for machining them in their workshops.

*Excluding the units at Ahmedabad covered in the second round of the field investigation.

Employment

All India Position

44. The total number of workers employed exclusively in the production of textile machinery spare parts in India is estimated to be 5,589 as shown in Table IX. The basis of the estimate has already been explained. From the region-wise break down in the Table, it will be seen that the Western Region accounts for 85 per cent followed by Southern and Eastern Regions which account for 9 per cent and 6 per cent respectively, of the total number of workers employed in the industry throughout the country. Regional, State and Centrewise details of employment etc., are discussed in the following paragraphs.

Western Region

45. The total employment in the 147 units making textile machinery parts in the Western Region in 1956, was 2,586 workers. The centrewise employment is shown in Table X. Nearly 69 per cent of the total number of workers in the Western Region are employed in the Bombay State, 17 per cent in the Mysore State (only in Bangalore) and remaining 14 per cent in Madhya Pradesh State. Amongst the different centres included in the survey, employment in 96 units at Ahmedabad was the highest, namely 1,510. Employment of 437 workers at Bangalore excludes about 110 apprentices who were generally below the age of 18. Proprietors and partners of units actively participating in the operation of the units, have been included in the centrewise figures of employment. The employment in 400 small-scale units in the Western Region for the manufacture of textile machinery parts only has been estimated at 4,716 workers.

46. The centrewise classification of the small-scale units in the Western Region included in the survey according to number of workers, along with total number of units and workers at each centre is shown in Table X.

TABLE X

CENTRE-WISE CLASSIFICATION OF SMALL-SCALE UNITS ACCORDING TO NUMBER OF WORKERS EMPLOYED (WESTERN REGION)

State & Centre	Number of Units having					Total No. of units	Total No. of workers (1956)
	upto 10 workers	11-20 workers	21-50 workers	51-100 workers	Above 100 workers		
<i>Bombay</i>							
(1) Bombay	4	8	3	..	..	15	273
(2) Ahmedabad	48	32	15	1(a)	..	96	1,510
Sub-Total	52	40	18	1	..	111	1,783
<i>Madhya Pradesh</i>							
(3) Indore	5	1	2	1(a)	..	9	181
(4) Ujjain	..	1	1	..	1(a)	3	185
Sub-Total	5	2	3	1	1	12	366
<i>Mysore</i>							
(5) Bangalore	10	6	8	..	..	24	437
Grand Total	67	48	29	2	1	147	2,586

NOTE : The grouping of the units is according to composite employment and not according to employment-allocated to the production of textile machinery parts.

(a) Having investment much below Rs. 5 lakhs.

Source : Information collected from manufacturing units during field investigation.

47. Nearly 50 per cent of the units included in the survey are those employing upto 10 workers and about 33 per cent of units employ between 11-20 workers. On the other hand the number of units employing 21-50 workers is only 29 or about 20 per cent of the total number of units included in the survey. There are only three units employing more than 50 workers but having an investment below Rs. 5 lakhs. Small units i.e. those employing upto 10 workers, therefore, are on important section of the industry.

Southern Region

48. The total employment in the 26 small-scale units included in the Southern Region was of 1,098 workers. Of these only 58 were engaged at Trichur in Kerala State and the remaining—1040 in Madras State. About 87 per cent of the total employment in the Southern Region is concentrated at Coimbatore.

49. The distribution of small-scale units according to number of workers, in the Southern Region, is shown in Table XI.

TABLE XI
CENTRE-WISE CLASSIFICATION OF SMALL-SCALE UNITS ACCORD-
ING TO NUMBER OF WORKERS (SOUTHERN REGION)

State & Centre	No. of units					Total No. of units	Total No. of workers (1956)
	Upto 10 wor- kers	11-20 wor- kers	21-50 wor- kers	51-100 wor- kers	Above 100 wor- kers		
<i>Madras</i>							
(1) Coimbatore	•	6	5	4	7	..	22 951
(2) Madurai.	•	..	..	2	..	..	2 89
Sub-Total	•	6	5	6	7	..	24 1040
<i>Kerala</i>							
(3) Trichur	•	•	..	1	1	..	2 58*
Grand Total (Southern Region)	•	6	6	7	7	..	26 1098

Source : On the basis of information supplied by the units during field investigation.

*Engaged in the production of textile machinery parts only.

50. The relatively larger employment observed in the case of units in the Southern Region, is due to the fact, that with the exception of two units, all other units are composite units, which are making cotton textile machinery parts as a side line. The units except the two at Trichur could not furnish the number of workers exclusively engaged in the manufacture of cotton textile machinery parts.

Capacity and production

All-India

51. Annual capacity of the existing small-scale units in India for textile machinery spare parts on a single shift basis, is estimated to be Rs. 453.9 lakhs and production of textile machinery parts Rs. 302.6 lakhs as shown in Table IX. Of the total capacity, only 13 per cent lies outside the Western Region.

Western Region

52. It was not possible to estimate capacity in physical units, as a variety of items is produced by several units and as the equipment of the units is generally non-specific, i.e., such as can be applied to the production of a number of items according to the orders received by them. The centrewise estimates of capacity in value are mostly based on estimates made by individual units of the value of the maximum amount of goods that can be produced by them annually, on a single shift basis, with their present equipment.

53. The total capacity of 147 small-scale units included in the survey on the basis explained above was estimated to be Rs. 216 lakhs per annum. As against this, production amounted to Rs. 145 lakhs in 1956, of which production of textile machinery parts was Rs. 97 lakhs and that of other items (including complete dyeing and processing and preparatory equipment) Rs. 48 lakhs. Centrewise

details of capacity and production in 1956 of textile machinery parts and other items are shown in Table XII.

TABLE XII

CAPACITY AND PRODUCTION (1956) OF SMALL-SCALE UNITS
COTTON TEXTILE MACHINERY PARTS (WESTERN REGION)

State & Centre	No. of units	Total annual Capacity (Rs. lakhs)	Production (Rs. lakhs)		
			Textile Machinery Parts & Dobbies	Items other than Text. Machy. Parts.	Total
Bombay					
(1) Bombay .	15	25.28	13.74	7.01	20.75
(2) Ahmedabad	96	138.10	75.10	24.30	99.40
Sub-Total .	111	163.38	88.84	31.31	120.15
Madhya Prdaesh					
(3) Indore .	9	16.18	2.76	6.53	9.29
(4) Ujjain .	3	9.75	0.61	1.84	2.45
Sub-Total .	12	25.93	3.37	8.37	11.74
Mysore					
(5) Bangalore .	24	26.72	4.73	8.47	13.20
Grand Total .	147	216.03	96.94	48.15	145.09
(Western Region)					

Notes : (1) The capacity is for textile machinery parts and other items combined. Regarding assessment of capacity, please see discussion in Para 57.

(2) Ahmedabad figure for "others" includes one unit's total production of complete processing machinery and parts thereof.

(3) Bangalore figure for "others" mostly consists of complete preparatory machinery for art-silk weaving.

Source : Information supplied by manufacturing units during field investigation.

54. It would be observed from Table XII that production in 1956 in the Western Region was Rs. 145 lakhs or 67 per cent of the annual capacity of Rs. 216 lakhs. The corresponding percentage for Bombay units works out 82 per cent and that for Ahmedabad units 72 per cent. Next in respect of utilisation of capacity are the units at Indore and Bangalore, for which production in 1956 came to 57 per cent and 50 per cent of capacity, respectively. Only at Ujjain, production in 1956 was barely 45 per cent of capacity, presumably because one of the 3 units located there, switched over to production of beam flanges from that of sheet metal fabrication in 1956 and was not able to adapt itself to the new line rapidly. It was gathered from discussions with manufacturers during the course of field investigations that lack of orders was not so much a factor limiting the utilisation of capacity as was difficulty in getting the required types and quantities of raw materials at the right time.

55. On the basis of the capacity and production obtained for the 147 units included in the survey, the projected capacity and production for the 400 units reported to be engaged in the production of cotton textile machinery spare parts have been estimated to be Rs. 393·2 lakhs and 262·3 lakhs per annum respectively, as shown in Table IX.

56. *Composition of Production in Western Region.*—The production of textile machinery parts by 147 small-scale units in the Western Region amounted to Rs. 97 lakhs, as shown in Table XII. The major share to the Western Region's output of textile machinery parts is contributed by the units in the Bombay State, which produced Rs. 89 lakhs worth or nearly 92 per cent of the regional output. Amongst the different centres in the Western Region, the 96 units at Ahmedabad accounted for Rs. 75 lakhs or 77 per cent of the production of the units in the Western Region included in the survey.

57. The percentage breakdown of Rs. 97 lakhs (of textile machinery parts produced in 1956 by 147 small-scale units in the Western Region) can be roughly indicated according to the following four broad groups:

- (a) Loom parts such as picking shafts, tappet shafts, crank shafts, picking bowls, picking nose, picking plates, weft fork and grates, dobbies, spring, beam flanges etc 40 per cent.
- (b) Spinning parts such as spindles, bolsters, arbours, various wheels for spinning frames, components for inter and slubbing stages equipment etc.....19 per cent.
- (c) Machine-cut parts for looms and spinning frames 13 per cent.
- (d) Parts in categories (a) to (c) for which manufacturers could not give a break-down and various casting and components for dyeing and finishing processes (including stainless steel cheese dyeing, spindles and tubes) 28 per cent.

58. Separate item-wise figures were not available from manufacturing units. Moreover, exact figures covering broad groups of parts were not available in the case of units producing parts belonging to more than one of different groups of parts used in different sections of a textile mill. Further, units producing cast iron parts were not always able to give a precise break-down of production on the basis of the sections of a mill for which the parts were meant. The percentages given in Para 61 may, therefore, be taken only as a rough indication of the composition of the output, based partly on whatever estimates were available through discussions with manufacturers. A list of small-scale manufacturers in the Western Region, with items of textile machinery parts manufactured by each of them is given at Appendix 'C'.

59. *Trends in Production of Textile Machinery Parts in the Western Region:* Figures of production of textile machinery parts for the last three years were available for 61 units out of the 147 small-scale units in the Western Region. State-wise and centrewise details of the trend in production of these 61 units are shown in Table XIII.

TABLE XIII

TRENDS IN THE PRODUCTION OF TEXTILE MACHINERY PARTS BY SMALL-SCALE UNITS (WESTERN REGION)

State & Centre	No. of units (a)	Production of Textile Machinery Parts (Rs. lakhs)			Percentage increase in 1956 over 1954
		1954	1955	1956	
<i>Bombay</i>					
(1) Bombay .	12	7.95	8.61	11.81	48.5
(2) Ahmedabad	31	24.86	25.16	33.30	33.9
Sub-total .	43	32.81	33.77	45.11	37.4
<i>Madhya Pradesh</i>					
(3) Indore .	6	2.40	2.68	2.69	12.0
(4) Ujjain .	2	0.37	0.46	0.47	27.0
Sub-total .	8	2.77	3.14	3.16	14.0
<i>Mysore</i>					
(5) Bangalore .	10	2.12	2.99	3.83	80.6
Grand Total Western Region)	61	37.70	39.90	52.10	38.1

(a) For which data on production for 3 years were available.

Source : Information supplied by manufacturing units during field investigation.

60. The production of textile machinery parts by 61 units included in the Table XIII rose from Rs. 37.7 lakhs in 1954 to Rs. 39.9 lakhs in 1955 and then jumped to Rs. 52.1 lakhs in 1956. The increase over the period 1954—56 comes

to 38.1 per cent or slightly less than a cumulative annual rate of 17 per cent. A part of this increase in output, in value, is accounted for by the increase of about 5 per cent in the prices of Indian textile machinery parts during 1954—56, according to the information obtained from some important dealers at Bombay. It may be noted that the largest percentage increase in production during 1954—56 has taken place in respect of 10 units in Bangalore (80.6 per cent), followed by Bombay (48.5 per cent) and Ahmedabad (33.9 per cent).

Southern Region

61. Data regarding capacity and production of small-scale units in the Southern Region were available for 17 out of the 26 units included in the survey. The annual capacity of these 17 units for production of textile machinery parts in 1956 was Rs. 18.7 lakhs as against which production amounted to Rs. 12.6 lakhs, or about 66 per cent of capacity. The centrewise details of capacity and production of these 17 units are given in Table XIV.

TABLE XIV
CAPACITY AND PRODUCTION (1956) OF SMALL-SCALE UNITS
MANUFACTURING COTTON TEXTILE MACHINERY PARTS
(SOUTHERN REGION)

<i>State & Centre</i>	<i>No. of units</i>	<i>Capacity (a)</i> <i>(Rs. lakhs)</i>	<i>Production (Rs. lakhs) of Tex</i> <i>tile Machinery</i> <i>Parts & Dobbies</i>
<i>Madras</i>			
(1) Coimbatore . . .	13(b)	15.00	11.00
(2) Madurai . . .	2	1.70	0.70
(Sub-Total . . .)	15	16.70	11.70
<i>Kerala</i>			
(3) Trichur . . .	2	2.00	0.96
Grand Total (Southern Region)	17	18.70	12.60

(a) Capacity for textile machinery parts only.

(b) Excluding 3 organised units with an employment of 93 persons and 6 cottage servicing units with an employment of 46 workers, for which data on capacity and turnover was not available.

Source : Information obtained from manufacturing units during field investigation.

62. Besides the 17 units surveyed, details regarding the capacity and production of which have been tabulated above, there are other 13 units which are engaged partially in the manufacture of textile machinery spare parts. Projecting on the basis of results obtained in the case of 17 units, the annual capacity and production of all the existing units in the Southern Region may be estimated at Rs. 33 lakhs and Rs. 22·3 lakhs respectively.

Eastern Region

63. The annual capacity of small-scale units in the Eastern Region, pertaining to the production of textile machinery parts is estimated at Rs. 27·7 lakhs and production Rs. 18 lakhs as shown in Table IX.

Investment

All-India

64. Investment allocated to the production of textile machinery parts in existing small-scale units in India is estimated to be Rs. 81·4 lakhs, as shown in Table IX. Of this the units in the Western Region account for 80 per cent and those in the Southern and Eastern Regions 14 per cent and 6 per cent respectively.

Western Region

65. The total investment of 147 small-scale units in the Western Region amounts to Rs. 97 lakhs, Rs. 61 lakhs of which is in fixed capital and Rs. 36 lakhs in working capital, Centrewise details regarding number of units, number of workers and investment in fixed and working capital are given in Table XV.

TABLE XV

EMPLOYMENT AND INVESTMENT IN SMALL-SCALE UNITS, 1956

State & Centre	No. of units	No. of workers	Investment (Rs. lakhs)		
			Fixed capital	Working capital	Total
<i>Bombay</i>					
(1) Bombay .	15	273	7.71	4.66	12.37
(2) Ahmedabad	96	1,510	30.64	25.30	55.94
Sub-Total .	111	1,783	38.35	29.96	68.31
<i>Madhya Pradesh</i>					
(3) Indore .	9	181	6.51	2.06	8.57
(4) Ujjain .	3	185	3.65	1.35	5.00
Sub-Total .	12	366	10.16	3.41	13.57
<i>Mysore</i>					
(5) Bangalore .	24	437	12.07	2.93	15.00
Grand Total (Western Region)	147	2,586	60.58	36.30	96.88

Source : Information supplied by manufacturing units during field investigation.

66. It would be observed from Table XV that total investment of the reporting units in Bombay State amount to Rs. 68.3 lakhs or nearly 70 per cent of the total investment of the units in the Western Region included in the survey. Investment of Mysore units is 16 per cent and that of Madhya Pradesh units 14 per cent of the total investment of the 147 units. Both in the Region as well as in Bombay State the investment at Ahmedabad is the highest i.e., nearly Rs. 56 lakhs or almost 58 per cent of investment in the entire region or 79 per cent of the investment in Bombay State. This is natural, in view of the fact that Ahmedabad has also the highest number of units and workers engaged in production of textile machinery parts in the Western Region. It may be noted that the investment and figures given in Table XV referred to the

entire activities of the units. Some of these also make other items besides textile machinery parts.

67. The proportion of working capital to total investment comes to 37 per cent for all the units in the Western Region. However, corresponding percentage for units in the Bombay State is slightly higher i.e., 44 per cent. For the units in the Madhya Pradesh State working capital comes to 25 per cent of total investment and for the units at Bangalore, only 19 per cent of total investment. For the units at Ahmedabad, working capital constitutes 45 per cent of their total investment. Considering the fact that the total production of 147 units for all types of machinery (refer Table XII) in 1956 was Rs. 145 lakhs, the working capital of these units amounted to Rs. 36 lakhs which is equivalent to about 3 month's production.

68. The distribution of small-scale units (Western Region) included in the survey according to investment ranges is shown in Table XVI. A majority of the units, 122 out of 147, fall within the investment ranges upto Rs. 1 lakh. Only 25 units have an investment above Rs. 1 lakh. There are 57 units having investment upto Rs. 25,000; 27 units having investment between Rs. 25,001 and 50,000 and 38 units having investment between Rs. 50,001 and Rs. 1,00,000. While 10 of the 15 units in Bombay, the details of which are available, have an investment of over Rs. 50,000. Only 5 units have an investment, less than Rs. 50,000. On the other hand, of the 96 reporting units in Ahmedabad, 58 units have an investment of less than Rs. 50,000 and 38 units have an investment over Rs. 50,000. In Madhya Pradesh the number of units in the above two categories of investment, is 6 each way. The units in Bangalore present a picture almost similar to that obtained in Ahmedabad as there also as many as 15 out of 24 reporting units have an investment of less than Rs. 50,000. Thus in the Western Region a majority of the units (numbering 84 out of 147 reporting units) have an investment of less than Rs. 50,000.

69. On the basis of distribution of the output of 14 units in the Western Region as between textile machinery parts and other items, their investment allocated to production of textile machinery parts was projected to 40 units, to arrive at the estimated investment (for production of textile machinery parts) of 400 small-scale units in the Western Region. viz Rs. 64.91 lakhs. (a).

TABLE XVI

CENTREWISE CLASSIFICATION OF SMALL-SCALE UNITS ACCORDING TO INVESTMENT CATEGORIES. (WESTERN REGION)

		No. of Units having investment						
State & Centre	Upto	Rs.	Rs.	Rs.	Rs.	Rs.		
	Rs.	10,001	25,001	50,001	1,00,001	1,50,001	above N	
	10,000	to	to	to	to	to	2,00,000	
		Rs.	Rs.	Rs.	Rs.	Rs.	Um	
		25,000	50,000	1,00,000	1,50,000	2,00,000		
Bombay								
(1) Bombay	. 1	1	3	8	1	..	1	
(2) Ahmedabad	16	21	21	24	7	3	4	
Sub-total	. 17	22	24	32	8	3	5	
Madhya Pradesh								
(3) Indore	. 1	5	..	..	..	..	3	
(4) Ujjain	. ..	..	..	..	1	1	1	
Sub-total	. 1	5	..	..	1	1	4	
Mysore								
(5) Bangalore	4	8	3	6	2	..	1	
Grand Total	. 22	35	27	38	11	4	10	
(Western Region)								

Source : Information supplied by manufacturing units during field investigation.

(a) cf. Table IX.

Southern Region:

70. The total investment in 26 small-scale units part engaged in the manufacturing of textile machinery parts in the Southern Region amounts to Rs. 26.2 lakhs out of which Rs. 17.3 lakhs is in fixed capital and Rs. 8.9 lakhs

working capital. Details of investment at different centres in the Southern Region are given in Table XVII.

TABLE XVII

**EMPLOYMENT AND INVESTMENT IN SMALL SCALE UNITS
(SOUTHERN REGION)**

State & Centre	No. of units	No. of workers	Investment (Rs. lakhs)		
			Fixed Capital	Working Capital	Total
<i>Madras</i>					
(1) Coimbatore	22(a)	951	15.17	6.22	21.39
(2) Madurai	2	89	1.45	2.46	3.91
Sub-Total	24	1,040	16.62	8.68	25.30
<i>Kerala State</i>					
(3) Trichur	2(b)	58	0.68	0.25	0.93
Grand Total Southern Region	26	1,098	17.30	8.93	26.23

Source : State Directorates of Industries and Information obtained from manufacturing units.

(a) Includes 6 servicing cottage units having 46 workers and investment of Rs. 0.85 lakh.

(b) Excluding one unit attached to a textile mill.

Note : Units at Coimbatore and Madura produce textile machinery parts as subsidiary line. However, their investment and employment cover their entire activities.

71. Nearly 82 per cent of investment belongs to units located at Coimbatore, which is the most important centre for the production of cotton textile machinery spare parts in the Southern Region. The investment in working capital of the units in Southern Region amounts to about 34 per cent of their total investment; however, investment in working capital for the units at Coimbatore is 29 per cent of the total investment, partly because of the existence of six machineshops. They are partly doing job work on castings supplied by others.

75. Investment in small-scale units making textile the Southern Region, according to investment ranges, is shown in Table XVIII.

TABLE XVIII

CENTREWISE CLASSIFICATION OF SMALL-SCALE UNITS ACCORDING TO INVESTMENT CATEGORIES (SOUTHERN REGION)

State & Centre	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	above	Total
	Upto 10,001 Rs. to Rs. 10,000 25,000	15,000 to Rs. 50,000	50,001 to Rs. 1,00,000	1,00,001 to Rs. 1,50,000	1,50,000 to Rs. 2,00,000	2,00,000 to Rs. 20,00,00	Rs.	No. of Units
<i>Madras</i>								
(1) Coimbatore .	3	5	3	1	5	3	2	22
(2) Madurai .	..	..	..	..	..	1	1	2
Sub-Total	3	5	3	1	5	4	3	24
<i>Kerala</i>								
(3) Trichur .	..	..	1	1	..	..	..	2
Grand Total (Southern Region)	3	5	4	2	5	4	3	26

Source : Information supplied by manufacturing units during field investigation

73. It would be seen from the table that 14 out of 26 small-scale units in Southern Region, have an investment above Rs. 50,000. These units mostly consist of bigger general engineering workshops which produce other machinery apart from textile machinery parts. The units having investment below Rs. 50,000 are generally those manufacturing parts of other machinery besides textile machinery parts. As compared to the distribution of units in Western Region according to different investment ranges, a proportionately larger number of units in the Southern Region are to be found in the higher investment ranges, from Rs. 50,000 onwards.

74. Investment of all the 30 units, allocated to the production of textile machinery parts, is estimated at 11.68 lakhs, as shown in Table IX. This estimate was arrived at from investment of 17 units, allocated to the production of textile machinery parts on the basis of the proportion between their output of textile machinery parts (Rs. 12.66 lakhs) and of other items (Rs. 24.7 lakhs).

Eastern Region:

75. Investment in small-scale units making textile machinery parts in the Eastern Region is estimated at Rs. 4.85 lakhs, as applied to the production of textile machinery parts only as shown in Table IX, according to the method stated in Para 36.

Investment, Employment and Production—Averages and Ratios:

76. Average Investment, employment and output per unit in the Western Region centre-wise and state-wise are shown in Table XIX. Investment and output per worker at each centre and output/capital ratio (i.e. output per unit of investment) are also shown in the same table. Aggregate investment, employment and output have been taken into account for the calculation of their averages and ratios.

TABLE XIX

AVERAGE INVESTMENT AND OUTPUT (PER UNIT AND PER WORKER) AND OUTPUT/CAPITAL RATIO, 1956 (WESTERN REGION)

State & Centre	No. of Units	No. of workers	Invest-ment per unit Rs.	Average output per unit Rs.	Aver- age No. of invest-ment per work-er unit	Aver- age output per work-er Rs.	Output capit- al Ratio
Bombay							
(1) Bombay	15	273	82,467	1,38,333	18	4,531	7,600 1.68
(2) Ahmedabad	96	1,510	58,271	1,03,542	16	3,705	6,583 1.78
Bombay State	111	1,783	61,541	1,08,243	16	3,831	6,739 1.76
Madhya Pradesh							
(3) Indore	9	181	95,222	1,03,222	20	4,735	5,133 1.08
(4) Ujjain	3	185*	166,667	81,667	62	2,703	1,324 0.49
Madhya Pradesh State	12	366	113,083	97,833	31	3,708	3,208 0.87
Mysore							
(5) Bangalore	24	437	62,500	55,000	18	3,432	3,021 0.88
Western Region	147	2,586	65,905	98,700	18	3,746	5,611 1.50

*One of the units employs 131 workers with an estimated investment of Rs. 2.10 lakhs.

Based on Tables XII and XV.

77. The average investment per unit in the Western Region is Rs. 65,905 and the average number of workers is 18 per unit. At Ahmedabad where the major portion of the industry is concentrated, investment per unit is Rs. 58,271 and employment per unit 16, both being the lowest among the five centres of production in the Western Region. Investment per unit at Ujjain is Rs. 1.67 lakhs and at Indore Rs. 95,222, being the two highest figures for the region. The average output per unit for the Western Region as a whole comes to Rs. 98,700. However, the output per unit at Bombay (Rs. 1.38 lakhs), at Ahmedabad (Rs. 1.04 lakhs) and at Indore (Rs. 1.03 lakhs) are above the regional average.

78. The average investment and output per worker for all the 147 units taken together, comes to Rs. 3,745 and Rs. 5,611 respectively. The highest average investment per worker is at Indore (Rs. 4,735), although Indore comes third amongst the five centres in respect of output per worker. The lowest investment per worker is at Ujjain (Rs. 2,703), which also has the lowest output per worker *viz.*, Rs. 1,324. The units at Bombay rank first in respect of average output per worker which is Rs. 7,600. The average output per worker at Ahmedabad is Rs. 6,583—next to Bombay, but still, higher than average for the region as a whole. As far as the units in Madhya Pradesh State are concerned, units at Indore are in a better position *vis-a-vis* those at Ujjain, both in respect of average investment and output per worker.

Output/Capital Ratio:

79. The output/capital ratio for all the small-scale units included in the survey works out to 1.5. Ahmedabad units have the highest output/capital ratio *viz.*, 1.78 followed by Bombay 1.58. As between the three States in the Western Region, the units in the Bombay State have a better output/capital ratio than either the units in Madhya Pradesh or at Bangalore for which output/capital ratio is 0.87 and 0.88 respectively. Proximity to market and greater development of engineering industry in general in the two

centres in the Bombay State than the either at Indore and Ujjain or Bangalore. are primarily responsible for the comparatively better performance of units in Bombay and Ahmedabad

IV DEMAND OUTLOOK

FACTORS GOVERNING DEMAND

80. The factors governing the annual demand for textile machinery parts in any given area may be considered under two broad groups *viz.*, those affecting (a) the volume of demand and (b) the composition of demand.

81. The volume of demand for textile machinery parts is determined mostly by the following factors:

- (i) Installed equipment in textile mills and the extent of utilisation: The replacement demand for parts in the spinning and weaving sections will be governed both by the number of spindles and looms and the extent of their utilisation as reflected in annual averages for total number of looms and spindles worked in twenty-four hours. The replacement of parts of preparatory machinery and also finishing plants of mills will depend on the extent of their utilisation which, in its turn, would be governed by the working of the spinning and weaving sections.
- (ii) Standard of maintenance of machinery, which may vary from mill to mill.
- (iii) Financial policy of the mills regarding purchases of spare parts-whether all replacements considered essential for efficient working of machinery are allowed or whether there is a tendency to stint on the purchase of spare parts;
- (iv) Quality of parts used by the mills: The use of inferior quality parts increases the consumption of spare parts and may eventually mean larger expenditure on spare parts over a number of years.

- (v) Growth of the number of units manufacturing complete textile machinery i.e., spinning ring frames, looms etc. within the country and the extent to which they obtain certain components from small-scale producers of spare parts;
- (vi) The expansion of the existing textile mills and increase in the number of mills in the country.

82. The composition of demand for textile machinery parts will change over a period according to technological developments in spinning and weaving machinery and their adoption by mills. The use of accessories such as bobbies and adoption of various innovations in finishing processes, coupled with changes in the varieties of cloth produced by mills, would also cause some changes in the composition of demand for textile machinery parts and accessories.

CONSUMPTION

83. All India demand for textile spare parts can be estimated on the basis of indigenous production and imports as discussed below.

Production of Small-Scale Units:

84. The annual All-India output of textile machinery parts by small-scale units is estimated to be Rs. 302.6 lakhs in 1956 as shown in Table IX.

Production of Large-scale Units:

85. The annual production of spinning ring spindles, spinning rings, fluted rollers and tin rollers manufactured by large-scale producers of textile machinery and equipment, for direct sales, may be estimated at Rs. 117 lakhs; this estimate is based on the Planning Commission's statistics of production of these items for direct sales in 1955 and the fair selling prices for them estimated by

Tariff Commission in 1953* plus an allowance of 5 per cent for subsequent rise in cost of production. To this may be added the output of textile machinery parts worth Rs. 5.6 lakhs in 1956 produced by two large-scale general engineering concerns in the Southern Region and 9 in the Eastern Region, which accounted for Rs. 1.9 lakhs and Rs. 4 lakhs, respectively. The annual all-India production of textile machinery parts by large-scale units may, therefore, be estimated at Rs. 122.6 lakhs.

Imports:

86. Imports of spare parts for cotton textile machinery are not separately recorded in "The Accounts Relating to the Foreign (Land, Sea and Air-borne) Trades of India". However, half-yearly figures of the value of applications for imports of textile machinery spares and accessories, recommended by the Textile Commissioner to the Joint Chief Controller of Imports and Exports, are available for the period January 1955 to June 1957. These figures are shown in Table XX.

TABLE XX

**IMPORTS OF TEXTILE MACHINERY SPARES AND ACCESSORIES
RECOMMENDED BY THE TEXTILE COMMISSIONER, BOMBAY.**

<i>Period</i>	<i>Value recommended against applications for imports</i>	<i>Percentage increase over previous year</i> (Rs. lakhs)
January-June, 1955	174.71	..
July-December, 1955	233.39	33.6
January-June, 1956	275.45	18.0
July-December, 1956	388.21	40.9
January-June, 1957	114.35	-71.6

Source : Data obtained from the Office of the Textile Commissioner Government of India, Bombay.

87. It would be observed from Table XX that the imports of textile machinery spares and accessories have

*Source : Programmes of Industrial Development, 1956-61, Planning Commission, Government of India, 1956, pp. 36, 38 and 39.

increased during each successive half year in 1955 and 1956, touching the peak of Rs. 388.21 lakhs during July-December 1956, from Rs. 174.61 lakhs during January-June 1955. However, the imports of textile machinery spares and accessories during January-June 1957 dropped to Rs. 114.35 lakhs, recording the fall of 71 per cent over the previous half-yearly period. It is obvious that imports during July-December 1956 were abnormally high, as compared to the previous half-yearly period. An important reason for the decline in the value of applications recommended for imports of textile machinery spares and accessories during January-June 1957 was the fixation of a monetary ceiling to the total value of licences to be recommended by the Textile Commissioner from January 1957. The total value of licences recommended by the Textile Commissioner for the imports of spares and accessories could be taken as indicative of the All-India demand for imported spares and accessories for the textile industry excluding the Jute industry, in the absence of data on actual imports of spares and accessories. If the abnormally high figure of Rs. 388 lakhs for the period July-December 1956 is excluded, the annual average All-India demand for imported textile machinery spares and accessories would come to Rs. 399 lakhs, on the basis of figures for 1955, first half of 1956 and first half of 1957. The lower annual average of Rs. 399 lakhs has been taken for subsequent discussion of annual estimated consumption of textile machinery parts, as it is felt that the higher average of Rs. 474 lakhs includes the abnormally high imports during July-December 1956, which could not be taken to be for the normal requirements of the country.

88. The annual average imports of textile machinery spares and accessories amounting to Rs. 399 lakhs includes both accessories and parts for the woollen and art-silk textile industries which are not covered in the present survey. In the absence of separate data for licences recommended for accessories as also those recommended for spare parts for the woollen and art-silk textile industry, it may be

estimated that about 10 per cent* of the total figure for spares and accessories represents the value of licences recommended for accessories only. Further, an allowance of 5 per cent may be made for imports of spare parts for the woollen and art-silk textile industry. On this basis, the annual average imports of spare parts for the cotton textile industry may be roughly estimated at Rs. 340 lakhs.

89. To sum up, the annual All-India apparent consumption i.e. domestic production plus imports of cotton textile machinery spare parts may be estimated at Rs. 765 lakhs, of which, Rs. 302.6 lakhs originated from the small-scale sector, Rs. 122.6 lakhs from the large-scale sector and Rs. 340 lakhs from imports.

Estimated Annual Consumption by Mills

90. In order to build up All-India estimate of actual annual consumption of cotton textile machinery spare parts it was decided to contact three textile mills in Bombay and four at Ahmedabad for obtaining figures of consumption of important textile machinery parts as well as over-all consumption of such parts used in the spinning and weaving section in 1955 and 1956. The mills were selected in consultation with the Office of the Textile Commissioner, Bombay, so as to include mills with different production pattern as far as the count ranges and super-fine, fine, medium and coarse categories of cloth are concerned. In so far as the standard of maintenance and management are ordinarily related to the count ranges and categories of cloth produced, ranging from super-fine to coarse, this basis of selection also made allowance for the different standards

*Imports of bobbins, shuttles, spindles, pickers and picking bands and straps during January-December 1956 amounted Rs. 40.7 lakhs, as per "Accounts Relating to the Foreign Trade of India.". No imports of spindles may be expected now in view of the complete ban. Imports of picking bands and pickers, shuttles and bobbins may also be expected to decline in subsequent years in view of a reduction in the import quotas for them during the current licensing period. Actual imports of these accessories therefore, in 1957 are likely to be less than those in 1956. On the other hand, provision has to be made for certain other accessories such as cotton and wire healds, steel, brass and all metal reeds for the imports of which separate figures were not available.

of management and maintenance amongst the mills consuming textile machinery parts. The data were obtained by the investigation team by actual reference to the records of the mills with the exception of two mills at Ahmedabad which supplied the information themselves.

91. The detailed information was obtained from six mills regarding their consumption of loom parts and spinning frame parts, in value* for 1955 and 1956, and is expressed in the form of average expenditure per loom and per spindle, in Table XXI,

TABLE XXI

ANNUAL CONSUMPTION OF SPARE PARTS PER LOOM AND PER SPINDLE REPORTED BY SOME COTTON TEXTILE MILLS

	Mills					
	Bombay		Ahmedabad			
	A	B	C	D	E	F
I. Consumption of Loom Parts						
Average per Loom, 1955(Rs.)	33.00	51.00	65.70	161.00	35.00	23.00
Average per Loom 1956(Rs.)	62.00	55.00	82.90	112.00	47.00	71.70
II. Consumption of Spinning Frame Parts						
Average per Spindle 1955(Rs.)	1.50	1.10	5.10	6.00	1.02	1.19
Average per spindle 1956(Rs.)	1.60	1.70	4.70	5.00	1.70	3.29

Source : Information supplied by textile mills.

*The seventh mill at Ahmedabad supplied figure of consumption in terms of numbers of parts only.

92. It would be observed from Table XXI that the average consumption of spare parts per loom in 1956 varies between Rs. 55 and Rs. 83 in the case of three mills at Bombay and between Rs. 47 and Rs. 112 in the case of the three mills at Ahmedabad. Similarly the average consumption of spare parts per spindle in 1956 varies between Rs. 1.60 and Rs. 4.70 in the case of the three mills at Bombay and between Rs. 1.70 and Rs. 5.00 in the case of the three mills at Ahmedabad. The average consumption, in value, of spare parts for looms and spinning frames was on the high side for the mill 'C' at Bombay and mill 'D' at Ahmedabad. The mills accounted for this by stating that they undertook overhauling of the larger portion of their installed equipment during these two years. Apart from current replacement of some of the fast moving parts, there is a thorough overhauling of the spinning and weaving equipments at certain periodical intervals when all the worn out and un-serviceable parts are replaced to assure the efficient working of the equipments. The technical Sub-Committee of the Working Party for the Cotton Textile Industry, 1952, during its observation on the working of a sample of nine mills at Ahmedabad, pointed out* that all well managed mills follow a fairly regular programme of overhauling of machinery in their different sections. For example, ring frames are thoroughly overhauled once in two years, blow-room machinery once a year, cards at the time of changing fillets and combing equipment once a year. Looms are regularly overhauled by such mills, the cycle being 3 to 5 years. Thus the additional demand for spare parts when overhauling of various groups of looms and spinning frames as well as other equipment is undertaken, should be taken as a part of the normal demand for spare parts over, say, in a period of five years or more. The tempo of overhauling activity year by year may vary with each mill according to the production commitments of the mills concerned as well as the varying necessity of

*Report of the working party for the Cotton Hosiery Industry, Ministry of Commerce and Industry, Government of India, April 1952, p. 19⁸.

delaying or avoiding overhauling of looms and spinning frames. However, over a fairly good number of years, overhauling must be done if the mills are to maintain their efficiency as well as the quality of their output.

93. The average annual expenditure on spare parts would come to Rs. 66.6 per loom, on the basis of the corresponding annual averages for 1955 and 1956 for six mills stated in Table XXI. The annual average consumption of spinning frame parts comes to Rs. 2.8 per spindle, as computed from the figures of average expenditure per spindle in 1955 and 1956 given by six mills. Total annual consumption of loom parts and spinning frame parts by cotton textile mills in India may, therefore, be estimated at Rs. 483.6 lakhs. Of this, the total demand for loom parts is estimated to be Rs. 133.85 lakhs, on the basis of annual average expenditure of Rs. 66.6 per loom for 2,00,983 looms installed as on 1st January 1956. The balance of Rs. 349.77 lakhs represents estimated annual expenditure on spinning frame parts by the cotton textile industry in India, on the basis of annual average of Rs. 2.8 per spindle as applied to 1,24,91,774 spindles installed as on 1st January 1957.

94. The annual average apparent consumption of cotton textile machinery parts, on an All-India basis, was estimated to be Rs. 765 lakhs, as shown in para. 92. On the other hand, the All-India actual consumption of loom and spinning frame parts was estimated at Rs. 483.6 lakhs on an annual average, on the basis of data on consumption of these parts obtained from the records of six textile mills. If parts of preparatory and processing machinery consumed by cotton textile industry are also included, the total consumption of textile machinery parts by mills would be about Rs. 510 lakhs per year, on the basis of the estimate given by some mills that their consumption of spare parts for preparatory and finishing equipment is about 5 per cent of the value of their total consumption of spare parts.

95. The annual average requirement of spare parts by powerlooms working on cotton yarn, may be estimated at

about Rs. 7.25 lakhs, i.e., 5.4 per cent of the loom parts required by the mills sector. This is based on the fact that production of cloth by powerlooms was 273 million yards or about 5.4 per cent of the production of 5,094 million yards of cloth by the mills sector in 1955. According to the Textile Inquiry Committee, 1954, the number of powerlooms working on cotton was 24,071 or about 8.4 per cent of the installed loomage in mills in 1953. The demand for spare parts by powerlooms has not been derived from that for loom parts by textile mills on a *pro-rata* (i.e. per loom) basis because latest figures of number of powerlooms are not presently available and also because of the highly probable difference between utilisation and maintenance of powerlooms and of looms in textile mills.

96. The total annual consumption of spare parts by textile mills and powerlooms may be estimated at Rs. 517 lakhs. On the other hand, annual estimated production of spare parts in India and imports add up to Rs. 765 lakhs. If allowance is made for stocks of spare parts held by mills and dealers, which are equivalent to one to three months' requirements for different items, the difference between the two estimates would be considerably narrowed down.

Region-Wise and State-wise Estimates of Consumption

97. A region-wise and state-wise break-up of the consumption of spare parts in 1956 as estimated above, can be made on the basis of the regional and state-wise distribution of installed looms and spindles as well as relative position regarding the utilisation of equipment as judged by averages of total number of looms and spindles worked during 24 hours in mills in the various States in the four regions. Region-wise and state-wise statistics regarding the number of looms and spindles installed as also worked during 24 hours in December 1956 are shown in Appendix 'D'. The region-wise distribution of looms and spindles installed as well as worked in December 1956 in terms of

percentage of all-India totals is shown in Table XXII below.

TABLE XXII

**PERCENTAGE DISTRIBUTION OF INSTALLED LOOMS AND SPINDLES
AND OF TOTAL LOOMS AND SPINDLES WORKED DURING
TWENTY-FOUR HOURS. (DEC. 1956 DAILY AVERAGE).**

	<i>Percentage of Looms installed as on 1-1-1956</i>	<i>Percentage of spindles installed as on 1-1-1957</i>	<i>Percentage of total No. of Looms worked in 24 hours (Dec. 1956 average)</i>	<i>Percentage of total No. of spindles worked in 24 hours (Dec. 1956 average)</i>
Western Region	77.1	62.3	76.3	63.6
Southern Region	6.5	22.8	6.5	21.7
Eastern Region	5.4	5.0	5.2	4.7
Northern Region	11.0	9.9	12.0	10.0
All-India	100.0	100.0	100.0	100.0

Based on Appendix 'D'.

98. It will be seen from columns 2 and 3 of table XXII that the cotton textile mills in the Western Region accounted for 77.1 p.c. of the total number of looms and 62.3 per cent of total number of spindles installed in India. Similar proportions have also been given for the other three regions. For the purposes of comparing the utilisation of loom and spindles, statistics regarding the December 1956 daily averages of total number of looms and spindles worked during 24 hours in the cotton textile mills in the four regions were obtained. Columns 4 and 5 in Table XXII show the proportion of looms and spindles worked during 24 hours in December 1956 in the various regions to the corresponding All-India figures for looms and spindles. It would be observed from column 4 and 5 of Table XXII, that the respective percentages in the various regions regarding looms and spindles worked do not vary significantly from the regional percentages regarding looms

and spindles installed. Therefore, it could be safely concluded that the consumption of spare parts required for looms in the Western Region should be around 77 per cent of All-India consumption and of parts required for spinning frames around 63 per cent of All-India consumption. Corresponding proportions for other regions are also shown in Table XXII. State-wise break-up of demand within each region can be made on the basis of details given in Appendix 'D'.

99. The region-wise break-up of annual estimated consumption of loom and spinning frame parts, amounting to Rs. 483·6 lakhs as shown in para. 96, is given in Table XXIII. The break-up is based on the distribution of installed looms and spindles as between the different regions.

TABLE XXIII

ESTIMATED REGIONAL CONSUMPTION OF TEXTILE MACHINERY PARTS.

<i>Regions</i>	<i>No. of Looms installed as on 1-1-56</i>	<i>Estimated Annual Consumption of Loom Parts (Rs. Lakhs)</i>	<i>No. of spindles installed as on 1-1-1957</i>	<i>Estimated Annual Consumption of spinning Frame parts (Rs. Lakhs)</i>	<i>Total Consumption of Loom and Spinning Frame Parts (Col. 3+5)</i>
1	2	3	4	5	6
Western Region .	1,54,957	103·20	77,75,234	217·90	321·10
Southern Region .	13,036	8·70	28,47,972	79·75	88·45
Eastern Region .	10,771	7·23	6,29,450	17·49	24·72
Northern Region .	22,219	14·72	12,39,118	34·63	49·35
All-India .	2,00,983	133·85	1,24,91,774	349·77	483·62

Source : Estimates based on numbers of installed looms and spindles as shown in Appendix 'D'; and annual average consumption (in value) per loom and per spindle mentioned in Para. 93.

FUTURE DEMAND

100. The trends in future demand for textile machinery parts can be estimated broadly from four factors viz.,

trends in past consumption, trends in production, Government policy regarding the expansion of the cotton textile industry and the extent to which large-scale manufacturers of textile machinery are prepared to buy components from manufacturers of parts.

Trends in Past Consumption

Increase in Loomage and Spindlage.

101. The total number of spindles installed in India rose from 109·42 lakhs as April 1, 1951 to 120·51 lakhs as on January 1, 1956, that is by 9·2 per cent. Similarly the total loomage in India rose from 1·94 lakhs in 1951 to 2·03 lakhs in 1956 that is barely by 0·05 per cent*. From this, it may be concluded that during the First Plan period, the total demand for loom parts (in quantity) remained almost consistent and that demand for parts required for spinning section may have risen by about 10 per cent, on account of the installation of new equipment. Apart from the additional demand resulting from installation of additional equipment, the demand for spare parts for the old equipment should have risen slightly over the last five years on account of the ageing of the old machinery which might have called for greater replacements in order to prevent the loss in efficiency.

102. The increase in demand for textile machinery parts in terms of value for the last five years, would be definitely more than that in terms of quantity on account of an increase in the price of these parts during 1951—56. Some important dealers at Bombay reported that prices of Indian Textile Machinery parts had increased by 10 to 15 per cent and of imported ones 20 to 25 per cent, during 1951—56.

103. The Working Party for the Cotton Textile Industry, 1952 gave some interesting statistics regarding the expenditure of mills on repairs and renewals as collected

*Programmes of Industrial Development, 1956-61, Planning Commission, Government of India, 1956, Page 339.

from Profit and Loss Accounts of 199 mills covering about 70 per cent of the total spindles and looms in the Indian Textile Industry*. These statistics are placed in Table XXIV.

TABLE XXIV

EXPENDITURE ON REPAIRS AND RENEWALS BY 199 MILLS COVERING 70 PER CENT OF THE LOOMAGE AND SPINDLES IN THE INDIAN TEXTILE INDUSTRY.

<i>Years</i>	<i>Expenditure on Repairs and Renewals (Rs. crores). $\frac{1}{2}$</i>
1945	2.33
1946	2.46
1947	2.26
1948	2.50
1949	2.69

104. It would be observed from Table XXIV that the expenditure on repairs and renewals by 199 mills rose from Rs. 233 lakhs in 1945 to Rs. 269 lakhs in 1949 or by nearly 15 per cent. As the figures given in Table XXIV cover about 70 per cent. of the total spindlage and loomage in India, the total estimated expenditure by mills in 1949 on repairs and renewals may be projected to about 384 lakhs in 1949.

105. The number of spindles installed in India rose from 105.34 lakhs in 1949 to 124.92 lakhs in 1956, or by 18.5 per cent. On the other hand the number of looms installed rose from 1.98 lakhs in 1949 to 2.01 lakhs in 1956, or only by 1.6 per cent. The estimated expenditure of Rs. 384 lakhs on repairs and renewals by cotton textile mills in 1949, referred to in the preceding paragraphs, may be broadly divided into about Rs. 96 lakhs for loom parts, Rs. 268.8 lakhs for spinning frame parts and Rs. 19.2 lakhs on other textile machinery parts on the

*Report of the Working Party for the Cotton Textile Industry Government of India, April 1952, Page 612.

basis of rough break-down of the estimated total annual consumption of textile machinery parts in 1956, by the cotton textile industry. The corresponding estimated expenditure on renewals and repairs by cotton textile mills in India, in 1956 would amount to Rs. 437·9 lakhs if the estimated expenditure on loom parts and spinning parts in 1949 should be projected according to the percentage increase in loomage and spindlage between 1949 and 1956 and if estimated expenditure in 1949 of other textile machinery parts is increased by 13·9 per cent, that being the rate of increase in the estimated consumption of loom parts and spinning frame parts taken together, during 1949—56. The estimate of current consumption of textile machinery parts per year as given in paragraph 97 is Rs. 510 lakhs, as against Rs. 437·9 lakhs, projected from the statistics of expenditure on repairs and renewals by the report of the Working Party on the Cotton Textile Industry. This difference may be due to an increase in the prices of textile machinery parts during 1949—56 as well as some increase in consumption on account of the increasing age of a large portion of the textile equipment in use in India.

106. The Government of India's policy has been to allow the installation of additional 21 lakhs spindles during the Second Plan Period. The total number of spindles installed may be expected, therefore, to rise from 120·51 lakhs as on January 1, 1956 to 141·51 lakhs by the end of 1960-61, or by about 17·4 per cent. It may be concluded, therefore, that the demand for spinning frame parts which have to be replaced annually at more frequent intervals, will go up by about 17 per cent during 1956—61. In addition, expansion of loomage during the Second Plan Period has not been permitted except the installation of additional 18,000 automatic looms for production of cloth for export. The number of looms installed may be expected, therefore, to rise from 2·03 lakhs as on January 1, 1956 to 2·21 lakhs by 1960-61, or by 8·9 per cent. Consequently, the demand

for loom parts may be expected to rise by about 9 per cent during the Second Plan Period.

107. The over-all demand for loom parts and spinning frame parts used in the cotton textile industry in India may be expected to increase by 15 per cent during 1956—61, on the basis of the present proportion of estimated consumption of loom parts to consumption of spinning frame parts, in value. On this basis, the estimated actual consumption of textile machinery parts by the cotton textile industry in India, may be expected to increase from Rs. 517 lakhs in 1956 to Rs. 594 lakhs in 1961 assuming that the demand for spare parts like power looms remains constant.*

Likely Trend in the Production of Small-Scale Units:

108. As shown in paragraph 60, production of 61 small-scale units in the Western Region, in terms of value has increased by nearly 38·1 per cent during the period 1954—56. These figures refer to production of both the loom parts as well as spinning frame parts and parts pertaining to other textile machinery. If an allowance is made for an increase of 5 per cent in the price of indigenous finished parts during 1954—56, according to the information given by several dealers and manufacturing units the increase in output in real terms would amount to about 33 per cent during 1954—56, or 15 per cent annually at a cumulative rate. Although overall demand for textile machinery parts (including imported ones) is not expected to rise by more than 15 per cent over 1956—61, there is scope for the domestic producers to increase their output by 100 per cent over the period, or 15 per cent annually in order to replace imports in the market, which would be possible for them to do if the necessary raw materials, technical guidance and finance are available to them.

Likely Trend in the Production of Large-Scale Units:

109. Trends in the production of spindles, spinning rings, fluted rollers and tin rollers, by large-scale units

*Data regarding the implementation of the recommendation of the Textile Enquiry committee 1954 to replace handloom by power looms and to improve looms not presently available.

including those produced by manufacturers of complete textile machinery for direct sales, during 1951—55, are shown in Table XXV.

TABLE XXV

TRENDS IN PRODUCTION OF SELECTED SPINNING PARTS FOR DIRECT SALES BY LARGE-SCALE UNITS.

Year	Production (in Numbers)			
	Spindles	Spinning rings	Fluted rollers	Tin rollers
1951 . .	1,00,796	1,85,650	41,213	560
1952. . .	1,28,167	3,19,984	32,519	487
1953. . .	3,17,341	3,36,540	27,828	354
1954. . .	3,57,305	6,33,020	41,017	530
1955. . .	4,55,000	5,55,000	5,50,000	880
Percentage Increase in 1955 over 1951 :	351.4	198.9	1234.6	57.1

Source : Programmes of Industrial Development, Planning Commission Government of India, 1956, Page 36.

110. The increases in the production of spindles, spinning rings, fluted rollers and tin rollers for direct sale (i.e. for replacement purposes and not for original equipment) by no means reflect the increase in the overall demand for these parts within the country but the extent of expansion of indigenous production of these items as a result of protection extended to this industry, as also to some extent on account of tightening of import restrictions.

111. The question of development of ancillary industries for supplying components to the manufacturers of complete textile machinery has already been taken up at Government level by the National Small Industries Corporation and the Office of the Textile Commissioner. The *Ad-hoc* Committee* on the development of indigenous textile machinery manufacturing industry appointed a Sub-Com-

*Appointed by the Ministry of Commerce and Industry, Government of India to advise Government on the various aspects of the development of the textile machinery manufacturing industry in the country.

mittee to assess the requirements of various items by the textile machinery manufacturing industry. The Sub-Committee has prepared a list of such items which is shown in Appendix 'E'. It has been decided by the *Ad hoc* Committee to circulate the list to all the machinery manufacturers for their opinion and for their view on the possibility of inclusion of other items. For the time being, such a demand is not existing as none of the large manufacturers of complete machinery has agreed to sub-contract any parts. Attempts are being made for such an arrangement. It will be interesting to note in this connection that one large-scale unit manufacturing textile machinery at Coimbatore sub-contracts production of components worth about Rs. 4.5 lakhs in 1956 to small-scale units at Coimbatore.

Trend of Imports:

112. The trend in the imports of textile machinery spares and accessories can be visualised by the figures (in value) of total value of licences recommended by the Textile Commissioner for the import of textile machinery spares and accessories from January--June 1955 to January--June 1957, which have been already shown in Table XX. Imports of spares and accessories rose from Rs. 174.71 lakhs in January-June 1955 to Rs. 388.21 lakhs in July-December 1956, after increasing in each successive licensing period. However, they declined in January-June 1957 to Rs. 114.35 lakhs, or by 71 per cent over the previous half year. Lack of correct figures for actual imports of spare parts for cotton textile machinery in the previous years makes it impossible to visualise the trends in imports in the past as well as in the coming years. Further, since control in imports of spare parts is expected to continue during the second Five Year Plan Period, no definite conclusions about the future demand for imported parts could have been drawn from import trends in the past. The quota to established importers for components of cotton textile machinery was fixed at 50 per cent General or

or 100 per cent Soft or 10 per cent General on imports of complete machines or 10 per cent Soft on imports of complete machines. Applications for imports of some items which were on O.G.L. till 30th June 1957 would be considered on an *ad hoc* basis. The quota for imports of components from Soft currency area was reduced to 60 per cent for the period October 1957—March 1958.

113. The present position regarding the imports of textile machinery parts is stated in Appendices 'F' (i) to (iii). Appendix 'F' (i) shows the parts for which no import licences will be granted during October 1957—March 1958, which include specified parts for carding engines, spindles, fluted rollers, tin rollers, top rollers (except ball bearing top rollers), specified parts required for conversion of spinning equipment and automatic tensionless jiggers. Appendix 'F' (ii) and Appendix 'F' (iii) respectively show parts for which licences will be granted to established importers, generally against firm orders from actual users and to actual users, mostly on an *ad hoc* basis. This includes various parts for loom and spinning frames as well as other textile machinery. It is interesting to note in this connection, that the licensing for certain conversion materials mentioned in these two Appendices will be granted to actual users to the extent of 60 per cent of their requirements provided firm orders have been placed with indigenous manufacturers for 40 per cent of their requirements. This provision has not been made for any other category of spare parts. Spare parts for certain processing and finishing machinery* used in the textile industry are also not ordinarily allowed to be imported. Applications for licences for import of parts of such machinery, when required in value exceeding Rs. 5,000 would be considered only if accompanied by satisfactory evidence that they cannot be fabricated by any reputed workshops in India.

*As per list given in Appendix XXXV, Page 433 of Import Trade Control Policy statement for October—March 1958. Applications from actual users or established importers having firm orders from actual users would be considered *ad hoc* if evidence is produced that domestic producers are unable to supply machinery required.

V—COMPETITIVE OUTLOOK

LARGE-SCALE Vs. SMALL-SCALE.

114. Large-scale units enter the market for textile-machinery parts mostly for spindles, spinning rings, fluted rollers, tin rollers, inner tubes and ball bearing inserts. They do not sell in the open market, loom parts in any significant quantities as they are unable to compete with small-scale manufacturers in the matter of prices. Spindles, fluted rollers, inner tubes and tin rollers are also made by small-scale units. However, the quality of the first three items made by small-scale units does not compare favourably with those made by large-scale units as the latter have superior equipment for production and testing and also the benefit of technical co-operation from foreign manufacturers. The Millowners' Association, Bombay, also stated that among other parts, spindles, inner tubes and fluted rollers produced by small-scale units, were found to be far below the standards expected by the users.

115. Even in respect of certain loom parts, pertaining mainly to picking and sley, the mills expressed dissatisfaction with the parts produced by small-scale units. In general terms, the Millowners' Association, Bombay, stated that all forged parts, all parts made from alloy, carbon tool steel and mild steel and malleable spares produced by small-scale units, are of sub-standard quality. The poor quality has been ascribed to various reasons such as poor casting, bad finish, lack of adherence to dimensions, and mixing up of bad and irregular castings in the good ones.

116. In general, small-scale units command the major portion of the demand for loom spares and accessories such as dobbies whereas large scale units hold the field for certain key spinning parts such as spindles, spinning rings and fluted rollers. The scope for small-scale units for these items would seem to be small, in as much as production, in numbers, of spinning ring spindles in 1956 by large-scale units reached 10.47 lakhs, of spinning rings 12.62 lakhs and of fluted rollers 3.81 lakhs against the

Tariff Commissions* estimate of annual demand in numbers, (both for complete machinery and for replacements), of respectively 10 lakhs, 11 lakhs and 2.50 lakhs.

Competition Amongst States.

Western Region:

117. As already shown in Table XII, amongst the units included in the survey, those in the Bombay State produced textile machinery parts worth Rs. 88.8 lakhs or 91.6% of the total production of 147 units. Production of textile machinery parts in Madhya Pradesh and Mysore mainly caters to a part of the demand for such parts from local textile mills. Thus the units in Bombay State have little competition to face from those elsewhere in the region. Parts made at Ahmedabad, not only cater to requirements of textile mills at Ahmedabad but also to those mills in other States in the Western Region. It is estimated that over 50 per cent of the requirements of cast iron and mild steel parts consumed by the mills in Madhya Pradesh, is met by foundries attached to those mills and independent workshops machining the castings supplied by mill foundries. About 15 per cent of the demand is met by independent production of parts by small-scale units and nearly 25 per cent by parts imported mainly from Ahmedabad. The major factor giving a competitive advantage to Ahmedabad producers of parts in the Madhya Pradesh market is the 'Push' given by dealers who have direct contacts with the mills in Madhya Pradesh.

118. The small-scale units at Bangalore cater mostly to requirements of loom parts of textile mills in that area, besides producing preparatory machinery for the silk and art-silk power loom industry. A portion of the requirements for textile machinery parts in Mysore State is also met by one workshop attached to a local textile mill. Important spinning parts such as fluted rollers, inner tubes, spring rings, spindles etc., and certain loom parts such as springs,

*Report on the continuance of Protection to the Cotton Textile Machinery (Spinning Ring Frames, Spindles, Spinning Rings, Fluted Rollers, Tin Rollers and Looms) Industry, Tariff Commission, Government of India, 1954, p. 6-7.

picking sticks and accessories and shuttle and dobby parts are imported in Mysore State from Bombay and Ahmedabad.

Southern Region:

119. As already shown in Table XIV, production of textile machinery parts in Madras State in 1956 was Rs. 11.7 lakhs as against only Rs. 96,00 in Trichur in the Kerala State. In the Southern Region units in Madras State particularly those at Coimbatore account for nearly 90 per cent of the total output of textile machinery parts by small-scale units. Two large-scale engineering firms at Madras city also produce textile machinery parts worth about Rs. 1.6 lakhs. A large textile mill at Madras gets a part of its requirements of parts from the workshop of its sister concern at Bangalore. The production of textile machinery parts in the Southern Region caters to about 13 per cent of the demand for them in the Southern Region.

Eastern Region:

120. In the Eastern Region about 75 per cent of the demand for textile machinery parts is met by units located in and around Calcutta and industrialised areas of West Bengal. The latter have no competition to face from units located in other states of the Eastern Region.

Inter-Regional Competition:

121. As between the different regions there is no doubt that the largest concentration of small-scale units making textile machinery parts is in the Western Region, correspondingly with the concentration of cotton textile mills in the region *vis-a-vis* other regions. Whereas the total production of textile machinery parts by small-scale units in the Western Region is estimated to be Rs. 262 lakhs, that in the Southern Region comes to only Rs. 22 lakhs* and in the Eastern Region Rs. 18 lakhs**. It is understood that

*Excluding Rs. 1.6 lakhs worth of parts made by two large-scale engineering concerns.

**Excluding parts worth Rs. 4 lakhs manufactured by 9 large scale engineering concerns against orders.

there is no production of cotton textile machinery parts in significant quantities in the Northern Region, except by workshops attached to textile mills. Thus, as far as inter-regional competition is concerned, the Western Region accounts for a major portion of the All-India production of textile machinery parts, as also for their consumption. A comparatively few small-scale units have sprung up in the Southern Region to cater to local requirements because local production of simple cast iron parts would be more economical than importing such parts from Bombay or Ahmedabad involving additional transport cost and probable delays. Similarly, general engineering workshops in Calcutta are in a position to supply cast iron parts more cheaply and expeditiously than units in the Western Region because of the distance and the cost of freight in relation to value. In short, the production of relatively heavy and simple textile machinery parts tends to be market-oriented.

Indigenous Products Vs. Imports:

122. Competition from imported parts is practically non-existent in respect of spindles, fluted rollers, tin rollers, top rollers except of the ball bearing variety, and various components of carding engines and conversion materials, as no licences are being granted for their imports.

123. Loom parts and other spinning parts are allowed to be imported by actual users or established importers on the basis of firm orders from actual users. Competition with imports of certain items, such as, cradles, saddles and hooks, autolevers, tensers, hexagonal bar brackets, adjustable sectors, front top clearers and brackets, back under-clearer spring supports, is limited by the stipulation that applications would be considered from actual users of established importers having firm orders from actual users for 60 per cent of their requirements, provided firm orders have been placed with indigenous manufacturers for 40 per cent of their requirements. Competition from imported spare parts for certain processing and finishing machinery, listed in Appendix XXXV of Import Trade Control Policy statement.

for the licensing period October 1957-March 1958 is also restricted by the provision that applications for licences for imports of parts worth more than Rs. 5,000 have to be accompanied by a satisfactory evidence that such parts cannot be fabricated in India. In spite of import restrictions, and higher prices of imported items as compared to those made by small-scale units locally, mills still show a preference for imported loom parts, particularly for those pertaining to picking and sley motion and springs. According to the information supplied by Millowners' Association at Bombay and at Ahmedabad, as also by a few individual mills, the durability of indigenous loom parts is substantially less than that of the corresponding imported parts.

124. There is a marked preference for imported items for all spinning frame parts of a precision nature such as, flyers, presses, footsteps, parts of conversion materials, ball bearing jockey pulleys, roller bearing inserts, card clothing, ring travellers etc.

125. Discussions with some of the important dealers at Bombay revealed that the following spinning parts, which are in good demand, are partly made in India, but enlightened consumers of these parts prefer the use of imported products to those made in India, to avoid the risk of frequent break-down and additional outlay on maintenance stock.

1. *Spindles*: Rotary spindles for winding and stationary for un-winding to take cones, cheeses or pirns.

2. *Bobbins ordinary*: Diecast metallic, plastic or wooden in forms of cones, cheeses and pirns.

3. *Perforated Bobbins for dyeing*: Monel or stainless steel cones and cheese tubes.

4. *Adaptors*: To hold the perforated bobbins on machines.

5. *Gear Wheels*: Spur, bevel, helical, sprocket and ratchet machine cut from cast iron, mild steel, steel, phosphor bronze or resin bonded laminated fibre.

6. *Cams*: Intricately grooved or profiled, single or multiple purpose made of steel or heavy duty cast iron.

7. *Cam Rollers*: Steel hardened.

8. *Traversing Drums and Rolls*: Plastic or metallic peculiarly grooved drums for guiding the traverse of yarn.

9. *Thread Guides*: Ceramic, conductive or non-conductive, steel chromium plated or M. S. enamelled.

10. *Ball bearing type spindless Bobbin Holder*:

11. *Bearings*: Bush bearings, sintered metal bearings, laminated wooden fibre bearings, ball bearings, roller bearing and thrust bearings of special design.

12. *Springs*: Tension or compression springs of steel wire, pressure springs and balloon or basket springs from sheet metal.

13. *Slub Catchers*: having multi purpose adjustable jaws having fixed slotted jaws for a particular count of yarn.

14. *Tension devices*: Tension disc and tension weights..

15. *Shafts*: Driving or supporting.

16. *Boxes, Brackets and Levers*: C.I. machined or die casted from special alloys.

17. *Pulleys*: Ordinary flat faced or V grooved.

126. There is no question of any competition between imported and Indian Parts for the following items which, according to available information, are not being produced in India at present.

(1) Die casted metallic bobbins.

(2) Intricately contoured or profiled cams.

(3) Plastic or metallic traversing drums.

(4) Conductive ceramic thread guides for synthetic yarn.

(5) Ball bearing type spindless bobbin holders.

- (6) Sintered metal bearings.
- (7) Specially designed ball bearings and thrust bearings.
- (8) Balloon or basket springs.
- (9) Die cast boxes and brackets.

Feeling in the Industry

127. The general feeling in the industry is that small-scale units engaged in the production of textile machinery parts would continue to have adequate business during the Second Five Year Plan period. The industry is optimistic about its ability to meet the increased demand for various textile machinery parts being manufactured at present, inspite of some handicaps, the principal of which is the difficulty in procuring pig iron and scrap, steel and hard coke at the right time and at controlled prices. The general opinion was that if the raw materials situation improves, they would be able to increase output, improve quality and reduce costs. The growth in the industry in recent years has resulted in brisk competition as between the units. Almost all the units show considerable resourcefulness in facing the problem of shortage of raw materials. Only some have specialised in production of certain groups of items, the others being of the view that production should be adjusted according to orders received.

128. A majority of the units sell their products through dealers but a few manufacturers supply parts directly to mills against annual rate contracts. There was general dissatisfaction about the margin of profits derived by dealers in this industry, which was considered disproportionately high as compared to the margin of profit received by manufacturers. The dealers serve as an unavoidable link between the mills and the small-scale manufacturers under the present circumstances; viz. reluctance of most mills to invite open tenders for purchases of spare parts and their usual insistence upon placing orders with only those parties which are known to them and found to be reliable in their opinion.

VI—EMPLOYMENT OUTLOOK

PRESENT EMPLOYMENT

All-India.

129. The total estimated employment of small-scale units making textile machinery parts in India, is estimated at 5,554 workers, as shown in Table IX. This includes estimate of employment allocated to the production of textile machinery parts in the case of composite small-scale units. Workers engaged in the production of textile machinery parts in the small-scale units in the Western Region constitute 85 per cent of the corresponding all-India employment, the balance being accounted for by the workers engaged in the small-scale units in the Southern and Eastern Regions.

Western Region:

130. The employment in 147 small-scale units making textile machinery parts is 2,586 workers. This includes employment in 80 units making textile machinery parts only and 67 units making textile machinery parts along with other items.* Of the employment of 2,586 workers by 147 small-scale units, 67 per cent could be allocated as employment for production of textile machinery parts on the basis that 67 per cent of the total output of these 147 units in 1956 was of textile machinery parts. On this basis, estimated employment in 400 small-scale units in the Western Region, the purposes of manufacture of textile machinery parts, was estimated at 4,716 workers.

Southern Region:

131. The total employment in 26 units in the Southern Region amounted to 1,098 workers in 1956. This employment also covers both the production of textile machinery parts and other items by the 26 units. Unlike the units in the Western Region production of textile machinery parts constitutes only about 30 per cent of the total production of the units. The employment in 30 units for the production of textile machinery parts is estimated at 543 workers.

*The production of textile machinery parts by 147 units in the Western Region was nearly 67 per cent of their total production.

Eastern Region:

132. The employment in the composite small-scale units in the Eastern Region is estimated to be 320 workers for the purposes of production of textile machinery parts, as explained in Para 33.

Proportion of Skilled and Un-skilled Workers* in Western Region.

133. Centrewise data regarding distribution of workers into skilled, un-skilled and other categories was available for 86 units in the Western Region as similar data for the 61 units at Ahmedabad covered in the second round of field investigation was not collected. The break-down of employment at different centres covering 86 units, is shown in Table XXVI below.

Table XXVI

EMPLOYMENT IN 86 SMALL-SCALE UNITS—SKILLED AND UN-SKILLED CATEGORIES AT DIFFERENT CENTRES, 1956 (WESTERN REGION).

State & Centre	No. of units	Employment				Total
		Skilled including semi-skilled	Unskilled	Proprietors Partners etc.	Others	
<i>Bombay</i>	—					
(1) Bombay	15	165	65	7	36	273
(2) Ahmedabad	35(a)	447	167	57	56	727
Sub-total	50	612	232	64	92	1,000
<i>Madhya Pradesh</i>						
(3) Indore	9	80	84	8	9	181
(4) Ujjain	3	117	54	2	12	185
Sub-total	12	197	138	10	21	366
<i>Mysore</i>						
(5) Bangalore	24	274	112	24	27	437
Total	86	1,083	483	98	140	1,803
Western Region						

*Skilled workers have been defined as those working in the foundry and machinshop section, who require training for their jobs.

(a) Excluding the units at Ahmedabad covered in the second round of field investigation.

Source : Information supplied by manufacturing units during field investigation.

134. It would be observed that a proportion of unskilled to skilled workers comes to about 1:2.2, for the 86 units taken together. The proportion of unskilled workers to skilled workers is about 1:2.5 in the case of Ahmedabad, Bombay and Bangalore. Proprietors and partners directly engaged in production have also been included in Table XXVI. The 'others', category includes supervisory and clerical staff. It should be noted that about 110 apprentices employed in the small-scale units at Bangalore are excluded from the table as that feature is peculiar to that centre only, among the centres included in the survey.

Wage Rates

135. The range of wage rates prevailing in the small-scale units in the Western Region at different centres has been shown in Table XXVII.

Table XXVII

RANGE OF WAGE RATES IN SMALL SCALE UNITS (WESTERN REGION).

State & Centre	Range of Wages in Rs.		
	Skilled	Semi-skilled	Un-skilled
I	2	3	4
<i>Bombay</i>			
(1) Bombay .	4.50 to 6.75	3.00 to 4.50	2.00 to 2.50
(2) Ahmedabad .	3.80 to 6.00	2.25 to 4.00	2.25 to 3.00
(a) foundry (Normal 5 18 to 5.50)		(Normal Rs. 3)	(Normal Rs. 2.75)
(b) Machine shop (Normal)	3.00 to 7.00 3.50 to 5.00	1.50 to 4.50 2.75 to 3.75	1.00 to 3.00 2.00 to 2.50
<i>Madhya Pradesh</i>			
(3) Indore .	3.31 to 6.62	2.00 to 3.00	1.50 to 2.50
(4) Ujjain .	3.50	..	1.50 to 2.50
<i>Mysore</i>			
(5) Bangalore :			
(a) Foundry .	3.00 to 4.00	1.50 to 1.75	0.75 to 1.00
(b) Machineships:	2.25 to 5.00	1.25 to 2.00	0.75 to 1.00

Source : Information supplied by manufacturing units during Field Investigation.

136. Generally the wage rates for skilled occupations vary between Rs. 3/- to Rs. 6/- per day for foundry workers and Rs. 3/- to Rs. 7/- per day for machineshops. Wage levels at Bombay and Ahmedabad seem to be highest followed by Indore, Bangalore and Ujjain. For the semi-skilled occupations wages range from about Rs. 3/- to Rs. 4.50 per day. Although at Indore and Bangalore, they are normally around Rs. 2/- per day. The wages of unskilled workers at comparatively high-wage centres such as Bombay and Ahmedabad vary between Rs. 2/- to Rs. 2/8/- per day whereas at Indore and Ujjain they vary between Rs. 1.50 to Rs. 2.80 per day. Comparatively speaking wages for unskilled workers at Bangalore are low, ranging from Rs. 0.75 to Re. 1/-.

137. In the Southern Region normal wages for the skilled workers are Rs. 3/- per day and for the unskilled workers Rs. 1.5 to Rs. 2/- per day.

Availability of New Skills

138. The situation regarding the availability of skilled labour in the Western Region, for the production of textile machinery parts, varies from centre to centre. At Bombay only two or three units reported shortage of skilled labour for machineshops. However, Bombay being an important centre of concentration of various engineering industries, for a number of years, there is a corresponding concentration of skilled labour also. This concentration has been associated both by growth of engineering industry as well as facilities for technical training offered by Government and private agencies. At Ahmedabad also a few very small workshops (that is, those having an investment of about Rs. 10,000) experienced a shortage of skilled workers due to their inability to pay better wages. Due to the growth in the number of small-scale units in the engineering sector at Ahmedabad, the supply of skilled labour has also grown correspondingly on account of efforts of manufacturing units to train workers according to their requirements. This process has been

facilitated by the fact that the Panchal community at Ahmedabad, which is traditionally skilled in metal working, constitutes the nucleus of the working force in the industries at Ahmedabad.

139. The units at Madhya Pradesh reported the shortage of trained workers for foundry section. Although the units at Bangalore are experiencing at present, no acute shortage of skilled labour, they have to tackle the problem of periodical losses of skilled labour to large-scale engineering concerns in and around Bangalore by taking in almost a continuous team of apprentices.

140. In general it may be said that although the supply of skilled labour at Ahmedabad and Bangalore has so far adjusted itself to the demand, additional training facilities would be necessary in the future if there is further expansion of engineering industries there. In the case of Madhya Pradesh units, supply of skilled moulders has fallen short of the demand.

141. There is no specific shortage of skilled labour for production of textile machinery parts by the small-scale units in the Southern Region and Eastern Region as these are general engineering concerns interested in textile machinery parts as a supplementary line of the business.

EMPLOYMENT OUTLOOK

142. Employment for the production of textile machinery parts in the small-scale sector, is not expected to be more than 15 per cent in the Second Plan period. Although in 1956, as already mentioned in para 54, the units in the Western Region included in the survey are working to about 67 per cent of their capacity, the prospects of better utilisation of capacity by small-scale units would not only be determined by the prospects of their getting additional orders, which are not so bad, but also by the prospects of improvements in the present availability of raw materials as far as their quantities, types, prices and timings are concerned. The demand for spinning parts is expected

to increase by about 17 per cent and of loom parts about 9 per cent, during 1956--61 as discussed in para 106.

143. As long as small-scale units are not able to make spinning parts requiring precise processes of manufacture, it is doubtful how far they will be able to have a share in this increase in demand. On the other hand, small-scale units would have a relatively better scope with regard to parts for processing and finishing machinery used in the textile industry because their imports would be allowed on an *ad hoc* basis only if satisfactory evidence is produced by the prospective consumers that they cannot be made in India. Moreover, the prospects of getting orders for components from large-scale manufacturers of textile machinery have still not crystalized as the question is being considered at Government level in consultation with manufacturers of textile machinery. In view of all this, it is felt that the increase in employment that may be expected during the Second Plan period, would arise from a slight annual increase in the demand for replacement parts which are being manufactured by small-scale units at present with the gradual aging of various textile equipment in use in the country. Further, if the small-scale sector is better organised and developed, particularly at centres other than Bombay and Ahmedabad where the cotton textile mills are located, mills may prefer to curtail the activities of the foundries and workshops attached to them and pass on more orders for parts to small-scale units to save themselves the botheration of managing their workshops.

144. As stated in para 130, the total employment in the small-scale sector in the Western Region, directly engaged in the production of textile machinery parts was estimated at about 4,716. This employment is not likely to increase beyond 5,420 workers by 1961, unless the demand for indigenous textile machinery parts increases on account of additional restrictions on imports that may be imposed during the remaining years of the Second Plan period.

145. Employment in the small-scale sector in the Southern Region, directly engaged in the production of textile machinery parts only, may be expected to rise from 543 workers in 1956 to 624 workers in 1961, on the assumption that the total demand for textile machinery parts during the period would rise by 15 per cent in value, at constant prices. As shown in Table XIII, 17 of the small-scale units in the Southern Region produced textile machinery parts worth Rs. 12.6 lakhs in 1956 as against their annual capacity of Rs. 18 lakhs. Since production of textile machinery parts in the Southern Region caters to only about 13 per cent of the regional demand for such parts, it may be expected that the small-scale units in the Southern Region could expand their production to the full extent of their capacity if they get all the necessary raw materials, finance, machinery and technical help. However, since the major part of the production of composite units is of items other than textile machinery parts and since we do not have adequate information on the relative economics of manufacture of textile machinery parts and other items, it is a moot point whether existing idle capacity would be utilised for the manufacture of textile machinery parts or other items. Consequently, increase in direct employment in the small-scale sector pertaining to the production of textile machinery parts, in the Southern Region may not be expected to be more than 15 per cent during 1956—61.

Eastern Region:

146. The number of workers directly engaged in the production of textile machinery parts in the small-scale sector in the Eastern Region may be expected to rise from about 330 in 1956 to 380 in 1961, on the same basis as that applied in the case of estimates of increase in employment in the Western and Southern Regions.

147. To sum up the all-India employment, directly engaged in the production of textile machinery parts in the small-scale sector may be expected to rise from about 5,589 to 6,427 during 1956—61 or by 15 per cent.

VII—PROBLEMS AND RECOMMENDATIONS

GOVERNMENT POLICY

148. Various aspects of government policy have had a favourable influence on the development of small-scale units manufacturing textile machinery parts. These aspects are (i) inclusion of important spinning frame components and all loom parts in the scheme of protection granted to the textile machinery industry, (ii) selective import policy for spare parts, introducing progressive cuts on imports of parts which can be made in India, (iii) permission for installation of additional looms and spindles by the cotton textile industry, (iv) encouragement to the growth of indigenous textile machinery industry.

149. It has been estimated earlier that the value of imports of cotton textile machinery spare parts during 1955—57 amounted to Rs. 340 lakhs per annum, as compared with estimated indigenous production during 1956 of Rs. 302 lakhs by the small-scale sector and Rs. 122 lakhs by the large-scale sector. In the interests of further development of the small-scale sector manufacturing textile machinery parts, it is important that imports of spare parts should be progressively restricted along with improvement in the quality of parts not manufactured at present. Such restrictions would also lead to net saving of foreign exchange. It is recommended that a list of spare parts which can be made by small-scale units but which are not being made at present, should be drawn up by the Small Industries Service Institute, Bombay, in consultation with the Textile Commissioner, the Director of Industries, Bombay, the mill-owners' association and the manufacturers of spare parts. Additional items for complete ban on imports should be recommended to the Chief Controller of Imports and Exports, by stages, for such parts which are found to be produced within India in adequate quantities and upto the required quality standards. The major objective should be the drawing up of a programme of phased imports in tune with a correspondingly phased programme of technical

sources. The problem, so far as Ahmedabad units are concerned, is, therefore, to reduce the friction in the distribution of these materials through regular channels and to assure them their availability on an equitable basis. This could best be done if the local association of manufacturers themselves undertake the responsibility of distribution of raw materials to their members.

153. The Ahmedabad Engineering Factory Owners' Association used to distribute raw materials to its members till about a couple of years ago. It has suspended this activity on account of various reasons. It is understood that some of the members of this association have formed a new association, which has been already registered as a limited company, with the objective of tackling various problems of its members.

154. It is recommended that the Department of Industries, Government of Bombay, should encourage the formation of one representative association of small-scale manufacturers at Ahmedabad for the purpose of making bulk purchases of pig iron, steel, c.i. scrap and coke and distributing them among its members. The Department of Industries should assist this association by allocating quotas and permits for these raw materials.

155. It is further recommended that the Small Engineering Cooperative Society at Indore and the Iron and Steel Cooperative Society Ltd., at Bangalore should be assisted, financially and otherwise, by their respective State Governments to play a more active and extensive role, than in the past, in the distribution of controlled raw materials to their members.

156. It is also recommended that the Southern India Engineering Manufacturers Association at Coimbatore or which some of the small-scale units making textile machinery parts are members, should be similarly assisted by the Department of Industries, Government of Madras, to arrange for the distribution of controlled raw materials to its members. Small-scale engineering units at Coimbatore-

should be encouraged by the State Government to become members of the association.

TECHNIQUE OF PRODUCTION

157. A majority of the small-scale units manufacturing cast iron textile machinery parts at Ahmedabad, use pit furnaces rather than cupolas, on account of practical considerations, such as, requirements of molten metal, in relatively small quantities at a time by individual units, and lack of space and finance for expansion of casting facilities required for full utilisation of cupolas. The castings made at Ahmedabad are reported to be relatively better than those at various other centres in the Western Region, where foundry work is carried on. This is so because of the skill acquired by the workers in small-scale units from long experience as well as the local availability of the right type of sand. However, on account of lack of scientific training as also lack of facilities for metallurgical testing, various defects in the castings occasionally creep in, such as, undue hardness necessitating more time and consumption of tools for machining, short runs, porosity (resulting in reduced strength of the cast iron parts) and blow holes. The small-scale units at Bombay, Ahmedabad and Bangalore are already receiving technical advice regarding these defects in casting both by way of printed bulletins as well as periodical on-the-spot demonstrations and lectures. The Bangalore small-scale units are also in touch with the Small Industries Service Institute, Bangalore Branch, for further advice on problem of casting as well as machining.

158. With the establishments of Institute Workshops at Bombay, Bangalore and Indore and a facility centre* at Ahmedabad possessing equipment required by engineering units located there, it is expected that the problems connected with improvement in precision machining of certain textile machinery parts made by the small-scale

*Having equipment for machinshop, foundry, sand testing and mechanical testing.

units at present, would be solved. "It is recommended that the establishment of Institute Workshops at Bombay, Bangalore and Indore and Facility Centre at Ahmedabad should be expedited as it is essential to start them as soon as possible to give specialised technical help to small-scale units at these places for improving the quality of textile machinery parts made by them. Further, an Officer with special knowledge of textile machinery spare parts should be appointed for the Facility Centre at Ahmedabad, as it has the largest number of small-scale units engaged in this industry.

159. According to the replies received from the Mill-owners' Association, Bombay, and Ahmedabad Millowners' Association, the experience of the mills using textile machinery parts made by small-scale units, is varied. Whereas, in the case of some parts, the quality is quite upto the standard expected by the mills in the case of some other parts, there are various defects which may be generally summed up as those of low durability and inaccurate specification of size. The Millowners' Association, Bombay, have given a list of 49 items where, according to the information gathered by them from their member mills, the production of the small-scale units falls much below the standard expected by the mills. Further the Millowners' Association, Bombay also reported that all forged articles, all articles made of alloy and carbon tool steel and malleable iron and articles made out of mild steel made by small-scale units, are found to be below the standard expected by the users.

160. It is recommended that the Small Industries Service Institute, Bombay, should in consultation with all interests concerned undertake the preparation of a list of all essential and important textile machinery parts made by small-scale urgently required. Steps should then be taken for improvement in the quality of such parts by standardisation of

important parts; working drawing for such parts should be prepared by the Small Industries Service Institutes and supplied to small-scale units.

161. Besides measures for improvements in the quality of textile machinery parts already being made by small-scale units and their standardisation, it is also essential to encourage small-scale units to take up the manufacture of new textile machinery parts which are still allowed to be imported either because they are not produced in India at all or because production of such parts by large-scale units falls short of domestic demand. According to a technical survey of Small Engineering Industries at Ahmedabad, conducted in 1956 by the Small Industries Service Institute, Bombay, the small-scale engineering units at Ahmedabad, are in a position to manufacture practically all textile machinery parts with a few important exceptions such as spinning rings, ring travellers, fluted rollers, lappets, flyers, temple and temple rollers. Parts of preparatory equipment, not manufactured in India at all, have been already mentioned in para. 127.

162. It is recommended that a list of additional textile machinery parts which can be taken up for manufacture by small-scale units should be prepared, keeping in view the parts still allowed to be imported, parts already being made by large-scale units or for which additional capacity has been licensed as also the feasibility of their economic production on a small-scale basis. Working drawings and instructions regarding the correct process of manufacture and equipment for the production of such parts should be made available to the small-scale units, along with financial assistance either in the form of machinery on hire-purchase or loans under the State Aid to Industries Rules and/or State Finance Corporations.

163. Most of the textile parts required by the textile mills are produced in foundries and machine shops. The TCM Foundry Technologist, Mr. John Schnur, who visited most of the important foundries in the South, has drawn attention in his report to the defects in casting, cupola:

designs and operation. etc. The Small Industries Service Institute, Madras, should persuade the existing foundries and also the new ones to adopt the recommendations made by the Expert for improving foundry techniques. The Institute should depute its technical officers for this purpose to the important centres of production like Trichur, Coimbatore and Madurai.

MARKETING

164. On the basis of the discussions and lists prepared by the Committees, the Small Industries Service Institute, Bombay, in consultation with the Department of Industries, Government of Bombay, would then select the parts for which it would draw up and implement a detailed programme of technical assistance by the way of preparation of standard designs and blue prints as well as advice regarding the process of production and the use of right machinery.

165. It is further recommended that the same arrangements should be extended to Indore, Bangalore and Coimbatore after reviewing the working of such Committees at Bombay and Ahmedabad.

166. It appears to be generally in the interests of small-scale units making textile machinery parts at Ahmedabad, Bombay, Indore and Bangalore to arrange the marketing of their output jointly to improve their bargaining position. It is, therefore, recommended that they should be encouraged by the respective State Governments in the Western Region to arrange for joint marketing of their output either through a representative association or existing cooperative societies (in the case of Indore or Bangalore). Alternatively, they may be encouraged by the respective State Governments to form new marketing cooperatives, if existing associations or societies are not found to be working satisfactorily.

SUB-CONTRACTING

167. The National Small Industries Corporation is willing to encourage the production of components by ancillary

small-scale units to meet the requirements of large-scale units producing complete textile machinery. However, the tentative list of such components and the quantities in which they would be required annually* has to be finalised before the Corporation can take further action in the matter. In order to enable the Textile Commissioner and the *Ad Hoc* Committee to finalise this list, it is recommended that all the large-scale manufacturers of complete textile machinery may be requested to finalise their estimated annual requirements of components at an early date.

168. Manufacturers of power-looms meant to replace handlooms, as per recommendation of the Textile Inquiry Committee, 1954, should also be requested and encouraged to sub-contract selected components to small-scale units. Since the installation of new power-looms is subject to licensing by the Textile Commissioner, it is recommended that the Textile Commissioner may be requested to examine the feasibility of persuading manufacturers of power looms to come to working arrangements with the National Small Industries Corporation for sub-contracting the production of some components to small-scale units and of laying down a minimum limit of the value of such components as a percentage of the total cost of the loom.

169. To enable the small-scale units to take up ancillary production of the types mentioned in paras. 167 and 168 above, the Small Industries Service Institute at Bombay should provide working drawings and technical advice regarding process of production and correct machinery for important parts pertaining to looms, spinning frames and other textile machinery, as and when requested by small-scale units to do so.

INDUSTRIAL ESTATES

170. Many of the small-scale units manufacturing textile machinery parts at Ahmedabad are particularly anxious to shift to an industrial estate located at a convenient site, because of notices served by the Municipal

* c.f. Para 112.

Corporation to shift their factories to non-residential areas and also, in some cases, because of shortage of space for expansion. In this connection, the Ahmedabad Engineering Factory Owners' Association wrote to the Department of Industries, Government of Bombay, in August, 1956, that 77 of their members were interested in acquiring accommodation in an industrial estate proposed to be started at Ahmedabad and they would require about 31,500 sq. yards of accommodation and connected load of 314 H.P. for electrical energy. The members were prepared to bear the cost of land but requested a long term loan from Government for meeting 90 per cent of the cost of developing the estate and of construction of buildings. A site on Dudheshwar Road has already been tentatively selected for this estate. Further, the Small Industries Service Institute, Bombay, has already prepared a layout plan for this estate, with a detailed estimate covering cost of land and buildings amounting to Rs. 21.20 lakhs. The lay-out provides for accommodation for 73 workshops, with provision of accommodation measuring 60' x 60' for most of them and 60' — 120' for some others. The scheme has been already approved by the Scrutinising Committee for the Western Region.

171. During the course of the discussion with the small-scale units on this question, it was found that general sentiment was in favour of Ahmedabad Municipal Corporation developing and managing the estate. According to the latest available information, the Department of Industries, Government of Bombay, have already proposed to the Municipal Corporation of Ahmedabad that the latter should undertake the establishment and development of the proposed industrial estate with government assistance, on the same lines as is being done by the Bombay Municipal Corporation.

"It is, therefore, recommended that early steps may be taken by the Ahmedabad Municipal Corporation to undertake the construction of the proposed industrial estate at Ahmedabad, for which detailed lay-out plans and

estimates have been already prepared by the Small Industries Service Institute, Bombay. Till the industrial estate gets ready, action on the notices served on some of the concerns to shift their factories to non-residential areas, may be deferred by the Municipal Corporation".

FINANCE

Borrowings

172. Information regarding borrowings was available from 35 small-scale units in the Western Region. Unit-wise information about the amounts borrowed, rate of interest, source and purpose, is given in Appendix 'G'. Centre-wise summary of borrowings of these small-scale units in the Western Region is given in Table XXVIII.

Table XXVIII

**SUMMARY OF BORROWINGS OF SMALL-SCALE UNITS, 1956
(WESTERN REGION).**

	Bombay	Ahmedabad	Indore	Ujjain	Bangalore	Total
I. No. of Units (to which the information pertains)	6	14	2	1	12	35
Investment (Rs. lakhs)	6.88	12.39	4.33	1.69	10.76	36.05
Total borrowings (Rs. lakhs)	2.41	2.62	2.20	0.20	3.63	11.06
I. Analysis of Borrowings according to Sources						
1. State Governments. State Finance Corp. and National Small Industries Corp.						
Amount (Rs. lakhs)	..	0.20	0.20	0.20	2.36	2.96
Rate of Interest	..	6%	6-1/4	4-1/2%	..	..
2. Commercial Banks						
Amount (Rs. lakhs)	..	0.06	..	..	0.35	0.41
Rate of interest	..	6%	..	..	7% to 9%	..
3. Co-operative Banks :						
Amount (Rs. lakhs)	..	..	..	..	0.18	0.18
Rate of interest	..	..	..	..	3% to 6-1/4%	..

177. It was found that in the case of these 35 small-scale units in the Western Region which reported their existing borrowings, Rs. 8.44 lakhs or 76.3 per cent of total loans, was borrowed for working capital purposes. It may be noted that the entire borrowings reported by units at Bombay, Ahmedabad, Indore and Ujjain were for working capital purposes, whereas the 12 units at Bangalore had borrowed Rs. 1.01 lakh for working capital and Rs. 2.62 lakhs for fixed capital in the form of cash loans as well as machinery on hire-purchase from the National Small Industries Corporation.

178. Four small-scale units in the Southern Region reported the amount taken by them on loan for the purpose of their business. The details of their borrowings are given in Table XXIX.

Table XXIX

BORROWINGS OF SMALL-SCALE UNITS (SOUTHERN REGION)

Centre	Sl. No. of Units	Existing Borrowings			Purpose
		Amount (Rs. lakhs)	Rate of Interest (p.c.)	Source	
Coimbatore	1	0.03	12	Private Money lenders	Working Capital
"	2	0.40	6	Friends	N.A.
"	3	0.50	10	Friends	N.A.
"	4	1.00	9	From Sister Concern	N.A.
		0.50	4-1/2	State Govt.'s Aid to Industries Scheme.	
		0.14	7-1/2	Fixed Deposits.	
TOTAL	4 units	2.57	..	..	

Source : Information supplied by manufacturing Units.

179. According to the information given in the preceding table, private source supplied Rs. 2.50 lakhs or 80.5

per cent of the total borrowing of these units. The remaining amount was obtained by loan from the State Governments. The rate of interest for loans from private lenders varied between 6 to 12 per cent.

Table XXX

CENTREWISE SUMMARY OF CREDIT REQUIREMENTS OF SMALL-SCALE UNITS (WESTERN REGION)

Centre	No. of units	Existing Investment (Rs. lakh)	Total Credit Requirements (Rs. lakhs)	Analysis of Credit Requirements (Rs. lakhs)		
				For land & building	For machinery	For working capital
1	2	3	4	5	6	7
Bombay . . .	3	4.24	1.55	Nil	1.30	0.25
Ahmedabad . .	25	13.22	10.63	1.25	4.20	5.18
Sub-total Bombay State . . .	28	17.46	12.18	1.25	5.50	5.43
Indore . . .	5	6.23	2.25	Nil	0.70	1.55
Ujjain . . .	2	2.94	1.03	Nil	1.03	Nil
Sub-total M.P. State	7	9.17	3.28	Nil	1.73	1.55
Bangalore Mysore State	11	8.85	2.75	0.05	0.40	2.30
Grand total Western Region. . .	46	35.48	18.21	1.30	7.63	9.28

"The need for additional working capital reported by the units is for financing current operations with existing capacity. The need for additional fixed capital is mainly for expansion of capacity. The units were, in most cases, unable to estimate additional working capital that would be needed if they instal the additional machinery required by them. This could be roughly estimated at Rs. 5 lakhs for these 46 units assuming that the output capital ratio

for additional fixed assets is the same as that for their existing fixed assets”.

181. The total credit requirements of 46 small-scale units were reported to be 18·21 lakhs as against their existing investment of 35·48 lakhs. A little over 50 per cent of the requirements were stated to be for working capital; Rs. 7·63 lakhs or 42 per cent of total requirements were needed for machinery and Rs. 1·30 lakhs for land and building. In short, the credit requirements of these units for working capital and for fixed capital are roughly in equal proportions. The fact that total credit requirements are a little over 50 per cent of their present investment, reflects, so far as these units are concerned, a tendency of under-capitalisation for current requirements as well as a desire to acquire new machinery to expand and diversify their output. The additional machinery required by these units is meant for increasing the capacity of their machineshops, which may be utilised for textile machinery parts as well as for other items according to the order received by these units in the future.

182. The attention of the manufacturing units was invited to the facilities already available to small-scale units under the State Aid to Industries Rules and the arrangement for supply of machinery on hire-purchase by the National Small Industries Corporation. It is recommended that the State Bank of India may be requested to issue instructions to their Agents or other officers at Ahmedabad, Bombay, Bangalore and Indore, in charge of implementation of their scheme of providing short-term credits to small-scale industries, to examine sympathetically working capital requirements of small-scale units engaged in this industry at those places and to provide the necessary short-term credit facilities to credit worthy units.

Appendix A

Small Industries Service Institute Ministry of Commerce
& Industry Government of India 40-40A, Cawasji Patel
Street, Fort, Bombay-I.

QUESTIONNAIRE FOR SURVEY OF TEXTILE MACHINERY PARTS INDUSTRY

1. Name and Address:
2. Proprietary/Partnership:
3. Year of Establishment:
4. Year in which production of textile machinery parts was started:
5. Whether the unit is registered under the Factories Act:
6. Whether the unit has both foundry and machine-shop or foundry only or machineship only:
7. Names of Textile Machinery Parts and other items made by the unit:
8. Annual Installed Capacity in Weight/Value:

9. *Production.*

	1954		1955		1956	
	Quantity	Value	Quantity	Value	Quantity	Value
(a) <i>Textile Machinery Parts</i>						
(i) Parts for preparatory machinery (winding etc.)						
(ii) Parts for Looms						
(iii) Parts for spinning section.						
(iv) Parts for bleaching dyeing, finishing etc.						
(b) Other items.						

10. Investment

- (a) Land and Building . . . Rs.
 (b) Machinery and Tools . . . Rs.
 (c) Working Capital . . . Rs.

Total . . . Rs.

11. Employment

	Number	Total Wages Paid during 1956
(i) Skilled workers		
(ii) Unskilled workers		
(iii) Manager/Fore man		

12. Wage Rates (per day or per month)

	Skilled Workers	Unskilled Workers
Foundry'		
Machinshop		

13. Consumption of Raw Materials in 1956

	Quantity	Cost	Is it avail- able locally?	Controlled Price	Price actual- ly paid.
Pig Iron . . .					
Scrap . . .					
Coal Coke . . .					
Other Items . . .					

(b) Please state how much pig iron and coke you have to buy at market prices and how much was obtained at controlled rates :

14. *Loans taken for business:*

- (a) Amount originally borrowed;
- (b) Amount still to be repaid;
- (c) Source (Government/Bank/Cooperative Society/Private);
- (d) Rate of Interest;
- (e) Purpose for which Loan was taken (*i.e.*, for expenditure on Land and Building, machinery and tools or working capital).

15. *Marketing:*

- (i) Do you sell machinery parts directly to mills or through dealers?
- (ii) Rate of Commission to dealers, if any?
- (iii) Are most of your sales to local mills and dealers?
- (iv) What is the proportion of sales to outside mills and dealers to your total sales:

16. Important problems regarding raw-materials, labour, marketing and finance etc. (if additional money is required for the business, please state the amount and the purpose for which it is wanted).

Appendix B

A TENTATIVE LIST OF HIGH MORTALITY PARTS USED IN SPINNING AND WEAVING AND PREPARATORY DEPARTMENTS (a)

It is difficult to point out the parts of the machines in detail. However, a tentative list is enclosed. The frequency of replacements of these parts mentioned in the list differs from item to item. The list is confined to the parts of spinning, weaving and preparatory machinery and the accessories have been omitted.

Spinning

Blow Room:

- (1) Piano Feed Regulating Motion parts such as links
- (2) Bearings.

Carding:

- (1) Flat chains, (2) Bearings, (3) Some gear wheel like change pinions, (4) Flats, (5) Comb blades
- (6) Brushes, (7) Lickerin and cylinder undercasing.

Flame:

- (1) Coil or motion parts of draw frames, such as, tube wheels, (2) Draft gears, (3) Bevels, (4) Drive gears like bobbin shaft and wheels and spindle shaft and wheels
- (5) Spindles and Flyers, (6) Bearings (a) Foot steps (b) Brasses, (7) Fluted Rollers.

Ring & Doubling:

- (1) T. Roller wheels, (2) T. roller shafts, (3) Jocky Pulleys, (4) Draft gears, (5) Twist wheels, (6) Some building motion parts, (7) Lifter chains (8) Spindles, (9) Rings, (10) Tin roller bearings, (11) Tin Rollers, and (12) Fluted Rollers.

(a) Source : Office of the Textile Commissioner, Government of India, Bombay.

Weaving Preparatory: (1) Drive gears, (2) Cams, (3) Thread guides, (4) Tension devices, (5) Tension rollers of slow speed warpers, (6) Beam flanges (7) Some cam parts, (8) Copper rollers for sizing, and (9) Bearings.

Looms: (1) Loom Spindles, (2) Swel Motions, (3) Tappets and Picking Tappets, (4) Gear Wheels, (5) Take up motion parts, (6) Tappet bowls, (7) Crank shafts and crank arms, (8) Sley, (9) Wooden and leather items such as picking sticks, pickers, buffers, etc.

APPENDIX C I

(i) *List of Small-Scale Manufacturers of Textile Machinery Parts in the Western Region*

Name and Address	Items Manufactured
<i>Bombay</i>	
1. National Textile Engineering Works Ltd., 2nd Lane, Kumbharwada, Bombay—4.	All parts relating to weaving spinning, dyeing, bleaching, engineering deptt. etc.
2. Indo Engineering works, Hornby Villard, Opp. Gwalior Palace, Worli, Bombay—18.	Silk Twisting & Cotton Ring frame spindles.
3. Industrial Equipment Mfg Co. Kastur- chand Mill Compound, Bhavani Shankar Road, Dadar, Bombay—28.	Pinions, Railway Parts, Dies and Punches, Small Tools of other machinery.
4. General Engineering Co., 5th Kumbhar- wada Road, Bombay—4.	
5. New Industrial Works, 3 B Gilder Lane, Tardeo, Bombay	Loom spare parts, Spinning Machine parts, Railways parts, Ginning.
6. Bombay Spindle Mfg. Co., New Nagpada, Bombay.	Spindles (Sleeves)
7. The National Beam Flanges Corporation, 95, Manek Vallah, Near Kalachowki, P. O., Bombay—12.	Beam flanges.
8. Panchal Textile Industries, 1st Fanaswadi Jalumsinghwadi, Bombay—2.	Shuttle clips, Chains, Springs, Other Miscellaneous parts.
9. Globe Mechanical Works, 135/2nd Kumbharwada St., Bombay—4.	Textile machinery spare parts.
10. Standard Trading Agency Ltd., 139, Meddows Street, Bombay—1	Threadle looms, Textile Mills, spare parts, Reconditioning of spare parts.
11. Panchal Trading Co., 9th Khetwadi Lane, Bombay—4.	Assorted sizes of loom springs.
12. Textile Equipment Co., Anjirwadi, Mazgaon, Bombay—10.	Roller beaming spindles, Plain beaming spindles, Spinning sundries.
13. Vithal Purshotam & Sons Private Ltd., 2nd Khetwadi Lane, Bombay—4.	

Name and Address	Items Manufactured
14. Star Mechanical Works, 1st Pathan Street, Bombay—4.	Textile mill spare parts, Confectionery machinery spare parts.
15. Spring Co., Factory : Marol, Andheri (Bombay—41) Office: 36, Umarkhadi Cross Lane, Bombay—9.	Springs.
<i>Ahmedabad</i>	
16. M/s. A. Bhuder Kishore and Co., Cheekania, Ahmedabad.	Parts of spinning, weaving, dyeing, bleaching and engineering department and Amber Charkha parts.
17. M/s Umendram K. Mistry & Sons, Saher Danapith, Ahmedabad.	Spinwell-comb box, Picking Shaft, Picking bolt and Bush, Crank arm pin, Bevel, Bobbin, Spindle wheels, Tin Roller Shaft, Machine cut Wheels etc.
18. M/s Smith Engineering Works, Rupapari, Dariapur, Ahmedabad.	Crank and Tapper wheels, Parts of spinning etc.
19. M/s Mistry Shivram Ganesh & Sons, Astodia Chakla, Ahmedabad.	Dobby Part, Crank and Tappet Shaft wheels, Drum Split, Groove Pulleys and Machine cut Gear Wheels, Circulating machines etc.
20. M/s Punjabhai Vannalidas & Sons, Gheekana, Ahmedabad.	Wheels such as Spindle, Bobbin, Sewing Tappet Crank etc. Picking Shaft Picking bowl, Picking Nose, Picking Plate etc.
21. M/s Sakalchand Raghunath Iron & Brass Factory, Rentiawadi, Mirzapur, Ahmedabad.	Crank Tappet wheels, Tradle levers, Picking Bowl, Shuttle Plates, Sley Swords etc.
22. M/s Indian Iron & Brass Works, Saher Danapith, Ahmedabad.	Dobby parts, Spindle wheels, Weight Hooks, Separators, Brackets etc.
23. M/s Panchal Babulal Bros., Rupapari, Dariapur, Ahmedabad.	Gear Wheels, Dyeing Bleaching parts like Shafting etc.
24. M/s Omkar Iron & Brass Factory, Dariapur, Ahmedabad.	Picking Bowls, Irrigation Canal Gates, Small Machine tools etc.
25. M/s Vithaldas & Co., Lunaswada, Borden Rd., Ahmedabad.	Gear Wheels—all sizes, Dyeing Bleaching Parts Shaftings, Boring Tools, Agricultural Implements etc.

Name and Address	Items Manufactured
26. M/s Shethna Iron Works. & Co., New Cotton Mills Compound, Ahmedabad	Various type of trucks, W. I. Split Pulleys, Flour Mills parts etc.
27. M/s Panchal Hirabhai Revandas, Ghee- kanta, Ahmedabad.	Crank Shaft, Tappet Shaft Picking Shaft, etc.
28. M/s Atmaram Mohanlal Panchal, Mirza- pur, Ahmedabad.	Bolsters, Amber Charkha Parts etc.
29. M/s Mistry Shivram Bhuderdas & Sons, Pitaliabamba, Ahmedabad.	Gun Metal Humidifying Nossels Cheese Dyeing Tubes, Dyeing Plates, Pumps etc.
30. M/s Sitaram Iron & Brass works Lunaswada, Ahmedabad	Loom Conversion and spare parts thereof. Lap Roll, Lan Spindle, Machinery of Guide Rolls and type of Rolls etc.
31. M/s Mahavir Iron Works, Dariapur, Ahmedabad	Machine cut Parts, Bobbin Wheels, Spindle Wheels, Coupling Wheels, Split wheels etc.
32. M/s Panchal Khordidas Motiram, Mirza- pur, Ahmedabad	Bobbin Wheels, Coupling Wheels, Split wheels etc.
33. M/s Laxminarayan Sharma & Co., Lunas- wada, Ahmedabad	Mainly Dobby parts. Also Spin- ning weaving and Textile Machinery parts etc.
34. M/s Rasik Iron Works, Mirzapur, Ahmedabad	Ball Bearing Pedestals, Pulleys Boring Foot Valves, Hand Pumps, Hand Blowers, Spare Parts of Flour Mills.
35. M/s Ambica Vijay & Co., Pitatiabamba, Ahmedabad	Starting Handle, Crank Arm, Picking Bolt, Heater Spring, Dobby knife complete with rod, Cap Bar Finger, Coiler rube wheels etc.
36. M/s Navin Engineering Works, Opp. Delhi Gate Police Chowkey, Ahmedabad	Loom Parts, Cap Bar Fingers, Roller Stands, Off hand Pedestals, Tin Roller Coupling etc.
37. M/s Madhusingh & Bros., Sarkiwad, Shahpur, Ahmedabad	Spinning, Weaving and Dobby spare parts.
38. M/s Jagadish Iron & Brass Factory, Pankor Naka, Ahmedabad	Warp stop Motion, Cap Bar Fingers, Top Rollers, Gearing Assembly, Traverse Motion Amber Charkha Parts etc.
39. M/s Indian Metal Works, Mirzapur Road, Ahmedabad	Spinning, Weaving, Winding, Warping, Sizing Parts etc.

Name and Address	Items Manufactured
40. M/s K. M. Panchal, Chhotalal Chawls, Ahmedabad	Spinning and Weaving spare parts. Specially TIN ROLLER BALL BEARING
41. M/s A. B. Bros., Gheekanta, Ahmedabad	Weaving and Spinning Spare parts.
42. M/s Alliance Textile Agency, Gheekanta, Ahmedabad	All types of wheels, separators weight hooks, Oil Engine Parts etc.
43. M/s Shakti Engineering, Chhotalal Chawl, Ahmedabad	Mainly lathes, spinning and weaving. Textile Machinery spare parts.
44. M/s. Bharat Textile Works, Kankaria Road Ahmedabad	Padding Machines, Open Soaper Machine, Scutcher Machine Heavy Dobby Finger Pumps, Air conditioning, Cooling and ventilating part etc.
45. M/s. Mahendra Engineering Works, Chhotalal Chawls, Ahmedabad.	Tappet Shaft Brackets, Shutter Stands, Tin Roller Shafting Pedestal etc.
46. M/s. Ambica Vijay Brass & Iron Factory, Lunaswada, Ahmedabad	Dyeing, Bleaching and Printing Machinery Parts etc.
47. M/s. International Engineering Works, Chhotalal Chawl, Ahmedabad.	Tradle Bowl with Bush, Picking Bowl with Bush, Tappet Shaft wheels, Bevel wheels etc.
48. M/s. Ambica Moulding Works, Shahpur Bridge, Ahmedabad.	Dobby spare parts, Picking Bowl, picking plates, Picking noses, Picking Bushes, Loom Tappets. Jack Shafts, Top Rollers etc.
49. M/s. Mahendra Metal Works, Mirzapur Road, Ahmedabad.	Combers spindles, Cradles, Bush, Diesel Truck spare parts etc.
50. M/s. A.R. Palhenwan & Co., Outside Delhi Gate, Ahmedabad.	Tradle leavers, Tappet wheels, Bobbin shaft, Dobby parts, Picking Bowls, Plates Noses and Gears used in Spinning Department.
51. M/s. Ahmedabad Wood Works Vijay Mills Compound, Naroda Road.	Textile parts-metal Textile parts-woods Picking shafts Picking Bolts Crank & Tappet shafts.
52. M/s. Zenith Engineering Works, Tankshal, Kalpur.	Heavy C. I. parts such as Licker-in-Rolls, Stainless-steel parts for dyeing gears for transmission, driving motion (Gear and Pedestals)

Name and Address	Items Manufactured
53 M/s. Lallura n M. Panchal, Nani Lodhwad, Behind Daryapur Tower.	Picking shafts, crank shafts, tappet shafts and picking bolts.
54 M/s. S.R. Engineering Co., 919, Golwad, Lunsawad.	Winding spindles all types and spinning section spare parts.
55 M/s. Mistry V. M. Iron Works, 1186, Pankore Naka.	Perforated cheese dyeing tubes and combs (Stainless)., Cheese dyeing spindles (Stainless) . Main lite that of furniture and safes.
56 M/s. Mistry Jivanlal Ramchandra & Bros., Bhoiwada, Shahpur.	Spindles, bolsters (Jute, cotton & silk) Inner tubes (Jute).
57 M/s. Nav Bharat Iron & Brass Factory, Panjarapole Chawl, Near Old Power House, Shahpur.	Loom Spare parts , a few items of spinning spare parts.
58 M/s. Kumar Moulding Works Shahpur Mills Compound.	Tappet and crank wheels.
59 M/s. Shah Moulding Works, Sir Chinubhai Baronet Compound, Shahpur.	Textile Machinery wheels Amber Charkha Parts, Hand Blowers scales, weights, water pumps etc.
60 M/s. M. K. Bros., Outside Shahpur Gate.	Spinning parts of Textile Machinery spindles, bolsters, arbours and carding engine parts.
61 M/s. Devico Engg. Works, Opp. Gujerat Samachar Bldg., Khanpur.	Loom parts, spinning parts, dobby, ring frames, slubbing roaring intermediate.
62 M/s. Mistry Prabhudas Joitram, Salapose Road, Opp. Medical Hospital.	Wheels and gears for textile, machinery.
63 M/s. Manilal Shankarlal & Co., Salapose Cross Road.	Weaving spare parts.
64 M/s. Malek Moulding Works, Salapose Cross Lane, Patkar, Kuwa.	Casting of Textile Machinery spare parts.
65 M/s. Mohanlal Raghunath Iron & Brass Factory, Dabhadia Duva, Gheekanta.	Weaving and spinning parts.
66 M/s. B. Kapasi & Co. & Iron Works C/o Khodi Ambali.	Weaving spare parts, dobbies spinning parts.
67 M/s. Panchal Engg. Works, Dariapur Char Rasta/Sarangpur, Lati Bazar.	Folding machine, other textile machinery parts, such as : gears and M. S. parts.
68 M/s. Keshavkak Laxichand Iron & Brass Factory, Dariapur, Dabgarwada, Ganchi's Wadi.	Weaving and spinning machine parts.

Name and Address	Items Manufactured
69] M/s. Saurashtra Moulding Works, Outside Prem Gate, Balwa's Dehla.	Textile parts, building materials etc.
70 M/s. Shuttle Engg. Workshop, out- side Prem Darwaja.	Picking shaft, shuttle plates and loom sundries. Other items except Textile machinery parts.
71 M/s. The Venus Engg. Co., Opp. Laxmi Cotton Mills, Kankeria Road.	Textile Machinery parts, loom parts, printing rolls.
72 M/s. S. Hiralal Panchal & Co., Lunsawad, Golwad.	Specialists in Spinning and comber parts conversion of cards and drop boxes.
73 M/s. Sarvodaya Electroplating and Brass Works, Office—3012, Ratanpole.	Casting gear wheels and loom spare parts. Building materi- als.
74 M/s. Govindlal Keshavlal Iron & Brass Factory, 633, Ghee Kanta.	Crank & tappet shafts, Loom brackets all types pincking shafts, spg. and wvg. wheels and machine cut all types.
75 M/s. Jagjivandas Amichandbhai, Dariapur, Rupapari.	
76 M/s. Dasrathlal & Bros., Gheekanta Road, Patalia Bumba.	Picking, picking plate, picking bush and other wvg. parts.
77 M/s. Girish Moulding Metal Works, Opp. Old Shivalaya, Gheekanta.	Wheel castings, textile m/c. parts.
78 M/s. Golden Metal Foundry Works.	Textile machinery spare parts.
79 M/s. Harshad Iron & Brass Factory, Dariapur, Dabgawada, Opp. Ganchi's Wadi.	Moulding of bobbins and spindle wheels.
80 M/s. Panchal Keshavlal Ambaram Bros., Gheekanta, Pitalia Bamba, Near Davadia Kuva.	Dobby spare parts, bobbin and spindle wheels.
81 M/s. Rohit Iron & Brass Factory, Gheekanta Road, Near Delhi Chakla.	Gear wheels, spindle wheels, bevel wheels.
82 M/s. Kamal Aswin Moulding Works, Outside Dariapur Gate, Swami Narayanwada.	Automatic loom parts and loom parts* Amber Charkha wheels.
83 M/s. Krishna Sahay Brass Factory, Delhi Chakla, Bhoiwada.	Bevel wheels, jockey pull up and other textile machinery parts.
84 M/s. Saraswati Metal Works, Opp. Painter Garden, Outside Delhi Gate.	Gear Wheels, spinning and wvg. parts.

Name and Address	Items Manufactured
85 M/s. Appolo Industries.	Dobby parts, crank and tappet wheels.
86 M/s. Ram Dev Moulding Works, Naklangpura, Marwari Chawl, Dudheshwar Rd.	Loom parts, tappet wheels, Amber charkha wheels.
87 M/s. Jaswant Engg. Works, Below Gomtipur Bridge, Kadaka Mill Compound, Behind Saifee Saw Mill.	Spindle parts, sanitary spindles
88 M/s. Dinesh Textile Industries, Jay Bharat Rangshala Camp, Outside Saraspur Gate.	Casting of Dobby parts, wheels etc.
89 M/s. J. C. Engineering Co., Sakar Bazar Cross Lane, Ahmedabad.	Spinning and Weaving machinery spare parts, machine-cut wheels, complete Dobbys with Jacks, complete dyeing jiggers, spindle and carrier wheels.
90 M/s. Oriental Engineering Works, Madhubhai Mill Compound, Ahmedabad.	Textile Machinery parts, shaping machines, Automobile spares.
91 M/s. The Brass & Iron Works, 80-B, Madhubhai Colony, Ahmedabad.	Do.
92 M/s. Popular Textile Co., Bharatkhand Corton Mill Compound Asarwa, Ahmedabad.	Spinning and weaving spare parts.
93 M/s. Famous Bolt & Nut Iron Works, Jagara Mill Compound.	Loom parts, Ambar Charkha parts, and Centrifugal pumps.
94 M/s. Royal Iron Works, (Young Engineering Works), New Cotton Mill No. 1 Compound, Kankaria, Ahmedabad.	Gear wheels and other textile machinery parts, Ambar-charkha, planing machines, and other job work.
95 M/s. Aita Products (India), Ramkumar Mills Compound, Saraspur, Ahmedabad.	Dyeing and Bleaching spare parts, such as stainless steel, cheese dyeing Beams, Tules combs, guide-rollers, etc.
96 M/s. Joitram Bechardas & Co., Sulampurni Badi, Hanman Chawl, Sarajpur, Ahmedabad.	Loom and Dobby Spare parts
97 M/s. Amin Engineering Works Kadiawad, Sarajpur Ahmedabad.	Amber Charkha parts; at present manufacturing components like pedestals, etc.
98 M/s. C. V. Engineer, 387, Near Dudhvali Pole, Gheekanta, Ahmedabad.	Inner Tubes.

<i>Name and Address</i>	<i>Items Manufactured</i>
99 M/s. Satyavijay Moulding Works, Near Patalia Bamba Ghe- ekanta, Ahmedabad.	Textile machinery, castings.
100 M/s. Ambe Iron and Brass Factory, Sutaria Building, Lunasawad, Ahmedabad.	Textile machinery parts, Railway parts, etc.
101 M/s. Becoy Engineering Co., (Inter- national Bearing Co), Ghe- ekanta, Ahmedabad.	Ball Bearings.
102 M/s. Atmaram Ishvardas Mistry, Rupapari, Dariapur, Ahmeda- bad.	Spinning and weaving spare parts.
103 M/s. Mistry Somnath Shambhunath, Behind Tower, Dariapur, Ahmedabad.	Do.
104 M/s. Bharat Vijay Moulding Works, Near Parsee Chawl, Prem Darwaja, Ahmedabad.	Textile machinery castings.
105 M/s. Bhuderbhai Idrathbai, Outside Prem Darwaja, Ahmedabad.	Textile machinery castings.
106 M/s. Jay Ambe Moulding Works, Opp: Mental Hospital, Dud- heswar, Ahmedabad.	Wheels, Pulleys, Brackets, etc.
107 M/s. A. B. Moulding Works, Opp: Kalka Mandir, outside Delhi Gate, Ahmedabad.	Textile machinery parts.
108 M/s. A. R. Engineering Works, Opp: R. C. High School, Munshi Soda Factory Compound, Mir- zapur Road, Ahmedabad.	Solid rollers, drawing loose bosc Spindle Collers, Pocker Bar Tubes, pocker bar Tin roller shaft, Dobby Shaft, Arbour Treadle Bowl with Pin Stud wheel, Slides with brass Tappet and Crank Shaft, Bushes, Crank Pin Stop-Rod collers, Picking Bowl, Picking Shaft etc.
109 M/s. New India Engineering Corpn, Bardalpura, Near Jubilee Mills, Outside Daryapur Gate, Ahmedabad.	Textile Machinery Parts, Diesel Oil Engines and Pumps.
110 M/s. Bharat Iron & Brass Works, Asarwa, Hairpur Road, Ah- medabad.	Picking Crank Tappet Shaft, Picking bowls, Crank and Tappet pins wheel, slay swords Picking Plate, etc. and Diesel oil Engines and Pumps.

<i>Name and Address</i>	<i>Items Manufactured</i>
111 M/s. Azad Moulding Works, Near Imbalal Bodiwala, Hathibhai's Wadi, Madhupura, Ahmedabad.	Textile machinery spare parts.
112 M/s. Bhagwati Moulding Works, Gujarat Ginning Mills Compound, Opp: Prem Gate, Ahmedabad.	Heavy Casting for Textile Mill Rollers and Loom sides, etc. and engine parts.
113 M/s Machinery Supplying Co., Kan-karia Road, Ahmedabad.	Textile machinery and component Parts.
114 M/s Mangaldas Jethabhai & Co., Daryapur Chakla, Ahmedabad.	Dyeing and Bleaching Plant, Mill Parts such as pulleys, pedestals, etc.
115 M/s. Hind Moulding Works, Outside Delhi Gate, Near Jec Factory, Delhi Khali, Ahmedabad.	Loom and Dobby Spare Parts casting.
116 M/s Ashok Moulding Works, Rantia Wadi, Mirzapur Road, Ahmedabad.	Loom Parts, Tappet Wheels, etc. and Ambar Charkha wheels.
117 M/s. Mistry Somnath Girdharlal, Suthornipole, Punchpipili, Tajpur, Ahmedabad.	Castings for Mill Machinery parts.
118 M/s. S. S. Panchal, Sutharnipole, Punchpipili, Tajpur Ahmedabad.	Do.
<i>Indore</i>	
119 M/s. Narendra Iron & Steel Works, 517, Silnath Camp, Indore.	Picking shafts, (2) Tappet shafts, (3) Crank shafts (4) Spindles.
120 M/s. Patel Industries and Engg. Works Silnath Camp, Indore.	Cast Iron Loose base Hrabers, for warp (2) Squashing rollers (3) Finishing Mangles.
121 M/s. M. S. Joshi Workshop, No. 2, Moti Tabela, Indore.	Picking shafts, (2) Picking bolts (3) Plates, (4) Tappet shafts, (5) Crank wheel shafts etc.
122 M/s. Ganesh Foundry 5, Chhot-Gwaltoli, Indore.	(1) Picking Shafts, Bolts etc.
123 M/s. Vasudev Bros, 97, Malhar-gang, Indore.	(1) Silk Loom Machinery parts.
124 M/s. National Engg. Works, Indore.	Picking shafts, gear, nut and bolts for spinning machine etc.
125 M/s. Paras Engg. Works 2, Chhoti Gwaltoli, Indore.	Spinning parts, Flanges, Capbar fingers, Crack Shafts, Collars. Button shafts collars etc.

*Name and Address**Items Manufactured*

- 126 M/s Varma Metal Turning Works, Picking shafts, bolts, etc.
29, Gorakund, Indore.
- 127 M/s. Modern Engineering and Turners, 12, Chhoti Gwaltoli, Spinning bars, Cap bars, etc.
Indore.

Ujjain

- 128 M/s. Bupendra Iron & Metal Works, Textile Machinery parts.
C/o Vinod Mills, Ujjain.
- 129 M/s. Lakshmi Iron Works, Sakhi- Textile machinery parts and
pura, Ujjain. frames.
- 130 M/s. Madhya Bharat Metal Plating Beam Flanges, Picking shafts
Engineering Works, Daulta- Crank Shafts, Spinning Vacuum
gani, Ujjain. Plants, etc.

APPENDIX C—II

LIST OF SMALL-SCALE MANUFACTURERS OF TEXTILE MACHINERY PARTS

Name and Address	Items Manufactured
<i>Bangalore.</i>	
131 Bangalore Textile Engineering Co.,	Preparatory Machinery
	1. Twisting
	2. Winding
	3. Doubling
	4. Reeling
	5. Rewinding
	6. Warping
	7. Creel Stand
	8. Fern Winders
132 Orr and Emm, Cotton Pet, Bangalore City.	Preparatory Machinery for silk, cotton and wool.
	1. Twisting
	2. Winding
	3. Fern winding
	4. Doubling
	5. Ring Doubling
	6. Cheese winding
	7. Reeling
	8. Warping
	9. Sectional & sizing
	10. Raising machinery.
133 Omm. Industrial Iron Works Mysore Road, Bangalore—2.	Preparatory Textile (silk) Machinery.
134 K. S. Seetharamiah & Co. 130, Cottonpet, Bangalore City.	1. Silk reeling & preparatory machinery.
	2. Handloom & Pedal looms and all accessories (80 items).
135 Sunrise Industrial Ltd., 5th Main Road, Oklipuram, Bangalore-3.	1. Twisting
	2. Winding
	3. Reeling
	4. Warping
	5. Automatic Fern winding machinery.
136 National Textile Engineering Works Behind Shivaji Talkies, Bangalore—2.	Silk Preparatory machinery.
137 Shri Ganesh Engineering Works, P. V. Rao Lane, Cottonpet, Bangalore City.	1. Silk (Textile) Preparatory machinery.
	2. Loom Dobbies (complete)
	3. Loom spares.

Name and Address	Items Manufactured
138 Ambika Industries, 114, Jaichandra-jendra Road, Behind Shivaji Talkies, Bangalore-2.	1. Dobby machinery. 2. Side rails for electric motors. 3. Pulleys (Electric Motors) 4. Sp. Binnys spare parts curling on job work bars.
139 Rayter, Oklipuram Bangalore No. 2	1. Dobbins and spare parts. 2. Crucible furnaces.
140 Mysore Manufacturers Ltd., Mysore Road, Bangalore.	1. Power looms and their spares 2. Dobbins. 3. Reeling machines. 4. Castings.
141 Metro Malleable Manufacturers Private Ltd., Mysore Road (Nayandally) Bangalore.	
142 Neo Engineering Works (Branch) 151/1 Cotton Pet, Bangalore.	Textile and Loom spare parts
Textile, (1) Worms (2) worm wheel (3) change-gears Tappet wheels (Gear wheels) slay Pl. te, slay-sword, crank wheels, rock wheels, roper rack wheels turning of crank shafts, bottom shafts bushes, brackets, Gear cut wheels. Picking shaft assembly, Temples with rollers.	
143 Neo Engineering Works 18, Bomboo Bazar, Bangalore.	Textile Machinery parts and accessories.
144 M. M. K. Engineering Works, 126, Safar Patmappa Road, Bangalore 2.	
145 Manjunath Engineering Works, Behind Shivaji Talkies, Bangalore-2.	Finishing of rebuilt motor parts suckers, bush-cutting, shaft turning.
146 Olympial Engineering Works, 53, S.L.N. Charities, Vani vilas, Inst. Rd., Bangalore.	1. Silk Twisting spindles, (2) Textile spares, Binny (3) Re-building of automobile parts.
147 M/s Vijaya Auto Works, Behind Sivaji Talkies, Bangalore-2.	1. Textile machinery parts.
148 Allied machinery & General Supplies 88, Pratap Road, Bangalore-2.	Textile machinery parts (complete)
149 Saraswati Iron Foundry, Mageli Road, Post Box No. 675, Bangalore-2.	
150 Dawn Engineering Works, 394, Main Road, Bangalore-3.	Manufacture of component parts to Kirloskars, Indian Telephones, Bharat Electronics parts to Textile Mills etc.

Name and Address	Items Manufactured
151 Globe Iron Foundry, Magdi Road, Bangalore-2.	1. Front Board Brackets 2. Picking shafts 3. Slay swords 4. Crank-shaft wheels 5. Bottom shaft wheels 6. Slay bolts 7 Cotton pins 8 Picking Nose 9. Picking nose shaft collars : 10. Stop rod bushes 11. Picking shaft top plates 12. Take up levers 13. Beam stands 14. Duck bills 15. Spindle stands 16. Eye bolts 17. Frogs 18. Heaters 19. Box and plates
152 Abdul Hakeem Magdi Road, Bangalore-2.	Preparatory silk machinery 1. Picking shift 2. Tapper wheels 3. Bearing tops 4. Crank Shafts and wheels.
153 Industrial engineering workshop Mahodi Road, Bangalore-2.	Machiners
154 M/s Aryan Rural Industries, Kanakapura, B. Dharmaraj Arya Kanakapura P.O. Bangalore Dt.	Spindles 2. Job works such as turning drilling and cutting.
155 The Indian Textile and Mechanical Works, Sir A.M. Shanmugan Textile Manufacturers, Bangalore.	Textile machiners spare parts (Complete)

APPENDIX C—II (Contd.)

LIST OF SMALL SCALE UNITS MANUFACTURING TEXTILE MACHINERY PARTS AND ACCESSORIES IN THE SOUTHERN REGION.

I. Madras State

- 1 Karthikeya Foundry, Pappanaickenpalayam, Coimbatore.
- 2 Ramu Foundry, Avinashi Road, Pappanaickenpalayam, Coimbatore.
- 3 Raju Naidu & Co., Sathiamangalam Road, Ganapathi P.O., Coimbatore.
- 4 Altex Industries, Kuniyamuthur P.O., Coimbatore.
- 5 Standard Auto & General Engineering Works, Jain Road, Coimbatore.
- 6 Venkateswara Industries, Souripalayam, Peelamadu P.O., Coimbatore.
- 7 Kasthuri Engineers, Kuniyamuthur P.O., Coimbatore.
- 8 Ponnuswamy & Co., K.R. Puram, Coimbatore.
- 9 General Engineering Co., Patel Road, Coimbatore.
- 10 Texmo Industries, Mettupalayam Road, Coimbatore.
- 11 Ramakrishna Metal and Alloys, Patel Road, Coimbatore.
- 12 Sree Rama Industrials, Tudiyalur P.O., Coimbatore.
- 13 Laxmi Foundry, Patel Road, Coimbatore.
- 14 Vijaya Foundry, Pappanaickenpalayam, Coimbatore.
- 15 Saraswathi Engineering Works, Mettupalayam Road, Coimbatore.
- 16 Jayachandra Engineering Works, Mettupalayam Road, Coimbatore.
- 17 Nagaswami Foundry, Subramaniapuram, Madurai.
- 18 Krishna Foundry, Subramaniapuram, Madurai.
- 19 Shanmuga Furniture Works, Thallakulam, Madurai.

- 20 Krishna Furniture Mart, Thallakulam, Madurai.

II.—*Kerala State*

- 21 Seetharam Mills, Punnamm, Trichur.
22 Vijaya Industries, Punnamm, Trichur.
23 Mookan's Mills, Trichur.

APPENDIX C-III

LIST OF SMALL-SCALE MANUFACTURERS OF TEXTILE MCHINERY PARTS IN THE EASTERN REGION.

- 1 Eastern Store, 42, Strand Road, Calcutta.
- 2 Industrial Orphanage, 11, Kashinath Dutta Road, Baranagar, Calcutta.
- 3 Chakraborty & Co., Belgharia, 24-Parganas.
- 4 Bharat Industrial Corporation, Howrah.
- 5 East and West Engineering Corporation, 7 Kashinath Dutta Road, Calcutta.
- 6 Bengal Casting, 117, B.T. Road, Calcutta.
- 7 Swami & Co., Strand Road, Calcutta.
- 8 P. Das & Co., Ariadhah, 24-Parganas.
- 9 Swasti & Co., Strand Road, Calcutta.
- 10 Machine & Mill Stores Corporation Ltd., Howrah.
- 11 A.K. Mondal, Howrah.
- 12 D.C. De & Sons, Howrah.
- 13 Mondal & Sons, Howrah.
- 14 A.C. Roy, Howrah.
- 15 Senapati Bros. Ltd., Howrah.
- 16 Howrah Engineering Concern Ltd., Howrah.
- 17 K.P. Das & Sons Ltd. Howrah.

APPENDIX D I

DISTRIBUTION OF INSTALLED LOOMS AND SPINDLES AND THEIR UTILISATION ACCORDING TO REGIONS AND STATES

Regions and States	L O O M S			
	No. of Looms Installed as on 1-1-1956	Percentage to All- India Total	December 1956 Average for total No. of Looms worked in 24 hours	Percentage to All- India Total
I	2	3	4	5
<i>Western Region</i>				
Bombay	1,37,586	68.5	2,82,981	67
Madhya Pradesh	12,722	6.3	27,238	6.5
Mysore	4,649	2.3	8,272	1.9
Sub-Total	1,54,957	77.1	3,18,491	76.3
<i>Southern Region</i>				
Andhra Pradesh	1,460	0.7	3,206	0.7
Kerala	1,225	0.6	5,828	1.5
Madras	8,032	4.0	14,743	3.6
Pondicherry	2,319	1.2	3,156	0.7
Sub-Total	13,036	6.5	26,933	6.5
<i>Eastern Region</i>				
Bihar	797	0.4	316	0.4
Orissa	864	0.4	2,486	0.0
West Bengal	9,110	4.6	18,885	4.6
Sub-Total	10,771	5.4	21,687	5.2
<i>Northern Region</i>				
Punjab	1,383	0.7	3,963	1.0
Rajasthan	3,457	1.7	3,979	1.0
Uttar Pradesh	13,630	6.7	31,725	7.4
Delhi	3,749	1.9	10,669	2.6
Sub-Total	22,219	11.0	50,336	12.0
GRAND TOTAL—INDIA:	2,00,983	100.0	4,17,447	100.0

SOURCE: *Indian Textile Industry, Statistical Bulletin*, Office of the Textile Commissioner, Government of India, Bombay December 1956 issue, P. 35, and July 1957 issue, pp. 29 and 35.

APPENDIX D II.

DISTRIBUTION OF INSTALLED LOOMS AND SPINDLES AND THEIR UTILISATION ACCORDING TO REGIONS AND STATES

<i>SPINDLES</i>				
<i>Regions and States</i>	<i>No. of Spin- dles Installed as on 1-1-1957</i>	<i>Percentage to All- India Total</i>	<i>December 1956 Average for total No. of spindles worked in 24 hours</i>	<i>Percentage to All- India Total</i>
	6	7	8	9
<i>Western Region</i>				
Bombay	68,64,982	54.9	1,49,29,151	56.3
Madhya Pradesh	5,02,924	4.0	11,00,286	4.2
Mysore	4,07,328	3.4	8,13,894	3.1
Sub-Total	77,75,234	62.3	1,68,43,331	63.6
<i>Southern Region.</i>				
Andhra Pradesh	1,50,516	1.2	2,98,497	1.1
Kerala	1,82,586	1.4	3,86,090	1.5
Madras	24,36,842	19.5	49,64,923	18.7
Pondicherry	77,928	0.7	1,07,648	0.4
Sub—Total	28,47,972	22.8	57,57,158	21.7
<i>Eastern Region.</i>				
Bihar	31,552	0.3	17,747	0.0
Orissa	60,236	0.4	1,43,108	0.5
West Bengal	5,37,662	4.3	10,97,026	4.2
Sub—Total	6,29,450	5.0	12,57,881	4.7
<i>Northern Region</i>				
Punjab	94,108	0.8	2,43,131	0.9
Rajasthan	1,64,826	1.3	2,83,513	1.1
Uttar Pradesh	8,11,328	6.5	16,39,666	6.2
Delhi	1,68,856	1.3	4,88,121	1.8
Sub-Total	12,39,118	9.9	26,54,431	10.0
GRAND TOTAL-INDIA	1,24,91,774	100.0	2,65,12,801	100.0

SOURCE: *Indian Textile Industry Statistical Bulletin*, Office of the Textile Commissioner, Government of India, Bombay, December 1956 issue, P. 35 and July 1957 issue, pp. 29 and 35.

APPENDIX E

TENTATIVE LIST OF ITEMS REQUIRED BY LARGE-SCALE MANUFACTURERS OF TEXTILE MACHINERY

List 'A' Items which can be made by small-scale units

<i>Name of the item</i>	<i>Assessed requirement per month</i>
<i>Carding Engines</i>	
1. Brass chains	100 pcs
2. Chain for flat strip winding motion	100 pcs
3. Flat chains	200 pairs.
4. Bristle brushes for cleaning flats	600 pcs.
5. Philipson type spiral brush	200 pcs.
6. Ordinary spiral Brush	100 pcs.
7. Needles for brush bar comb	30,000 pcs.
8. Grease nipples (various sizes)	1,200 pcs.
9. Stripping comb blades	400 pcs.
10. Flat strip winding roller	100 pcs.
11. Trumpet (brass and plastic)	200 pcs.
12. Oilite bushes	1,500 pcs.
13. Graphite blocks	400 pcs.
14. Plugs	1,000 pcs.
15. Pegs	1,000 pcs.
16. Card clothing tags	200 lbs.
17. Aluminium lap roller	100 pcs
18. Mote knives	100 pcs.
19. Lickerin and cylinder undercasings	200 sets
<i>Ring Frames.</i>	
1. Die cast separators	30,000 pcs
2. Lappets	30,000 pcs
3. Hank indicators	200 pcs.
4. Pneumafil equipment	200 pcs.
5. Lifter chains	3,500 ft.
6. Ring springs	140,000 pcs.
<i>Looms.</i>	
1. Hardware (nuts, washers set screws, etc.)	2,54,750 pcs.
2. Wooden screws	9,250 pcs.
3. Springs of various types	1,975 pcs.

Name of the item	Assessed requirements per month
4. Laminated Fulcrum sticks	500 pcs.
5. Laminated picking sticks	500 pcs.
6. Rubber canvass buffers	500 pcs.
7. Fibre for fulcrum sticks	500 pcs.
8. Check strap-leather	500 pcs.
9. Weft Fork Grate (steel)	250 pcs.
10. Leather shuttle guides.	500 pcs.
11. Clip regulator brackets	500 pcs.
12. Beam Tubes seamless 4" D.	850 pcs.
13. Leather belts for brake shoe upper and lower 1½" wide x 3/16"	500 ft.
14. Large rollers 3 1/2" O. D.	250 pcs.
15. Smaller rollers 1 7/8" O.D.	250 pcs.
16. Perforated steel strip	1,250 ft.
17. Leather for cloth roller tension springs	440 ft.
18. Ring temples plain L.H. and with spring weft cutter R.H.	500 pcs.
19. Filling knife upper and lower	500 pcs.
20. Filling knife support spacer and guides	750 pcs.
21. Weft feeler guide clips	250 pcs.
22. Battery bobbin guides	250 pcs.
23. Oil tubes for crank shafts, tappet shafts and swing rail bearings	750 pcs.
24. Pickers	500 pcs.
25. Bobbin cane tin	250 pcs.
26. Beam flanges	500 pcs.

Processing Machinery.

1. Stenter clips	400 pcs.
2. Pins and clips	500 pcs.
3. Various types of springs	50 pcs.
4. Spreket and other gear wheels	200 pcs.

N.B.—The requirements indicated above are of the machinery manufacturers. However, there is a great demand for these components by the consuming industry for replacement.

SOURCE. Summary note of the Sub-Committee meeting held in Bombay on 15-7-1957 for assessing the requirements of various components by the textile machinery manufacturing industry, Office of the Textile Commissioner, Bombay.

LIST "B"

(ITEMS REGARDING WHICH THE SUB-COMMITTEE DID NOT EXPRESS A DEFINITE
OPINION WHETHER THEY COULD BE MADE BY SMALL-SCALE UNITS OR NOT)

Name of the items	Assessed re- quirement per month
<i>Carding Engines</i>	
1. Comb boxes	100 pcs.
2. Roller bearings (cylinder)	300 pcs.
3. Ball bearing for doffer	300 pcs.
4. Ball bearings for lickerin	400 pcs.
5. Bearings for comb box	900 pcs.
<i>Ring Frames</i>	
1. Skewerless bobbin holders	7,000 pcs.
2. Roller bearing inserts	1,00,000 pcs.
3. Top rollers	50,000 pcs.
4. Ball bearing jockey pulleys	20,000 pcs.
5. Ball bearing for tin rollers	1,600 pcs.
6. Brass pipe	2,500 ft.
7. Nipples, elbows (TECALEMIT Lubrication system)	200 sets.
8. V-Belts	200 pcs.
9. High drafting equipment	100 sets.
<i>Processing Machinery</i>	
1. Safety valves	10 pcs.
2. Pressure gauges	50 pcs.
3. Steam and water valves	500 pcs.
4. Centrifugal pump	5 pcs.
5. Rubber and synthetic coated rollers	75 pcs.
6. Special types of transmission gears and drives	25 pcs.
7. Porcelain parts like Eye pots	50 pcs.
8. Acid and alkaline resisting pumps and sprayer system	20 pcs.
9. Pneumatic and Hydraulic pressure equipments	100 pcs.
10. Variable speed drives (electrical and mechanical)	50 pcs.
11. Control panel and switch board	5 pcs.
12. Differential mechanism for automatic jiggers	5 pcs.
13. Tension control device	10 pcs.

Name of the items	Assessed requirements per month
14. Measuring devices (yard meters)	50 pcs.
15. Distant reading (pyrometers)	5 pcs.
16. Copper rollers for printing	600 pcs.
17. Copper pipes	500 ft.
18. Roller chains	500 ft.
19. Calender bowls.	35 pcs.
20. Gunmetal brass, steel and cast iron bowls	5 pcs.
21. Electric heaters	5 pcs.
22. Aerofin heaters	5 pcs.
23. Thermostats	10 pcs.
24. Bristle brushes	12 pcs.

N.B.—The requirements indicated above are of the machinery manufacturers. However, there is a great demand for those components by the consuming industry for replacement.

SOURCE: Sub-Committee on assessment of requirements of textile machinery manufacturers, *Ad Hoc* Committee (Government of India) on various aspects of development of the textile machinery manufacturing industry in India, 1957.

APPENDIX F (I)

TEXTILE MACHINERY SPARE PARTS FALLING UNDER S. No. 5/III FOR WHICH
NO LICENCES WILL BE GRANTED DURING OCTOBER, 1957-MARCH, 1958.*

<i>Description</i>	<i>Remarks</i>
I (b) Spare parts for Carding Engines :	
Foot Plates required for cards of H&B	
Other spare parts :	
Main Cylinder for H. & B., T. & S. Cards.	
Cylinder Shaft.	
Front and Back Plates.	
Doffer Bearing Assembly for H.&B., T.&S. Cards.	
Lickerin Ball Bearing and Pedestal.	
Lickerin Cylinder for H.&B., T.&S. Cards.	
Feed Plates for H.&B., T.&S. Cards.	
Feed Roll for H.&B., T.&S., Cards.	
Doffer Comb Box complete excluding Doffer	Individual parts of
Comb Box of the Ball Bearing type.	Doffer Comb Box
	will be allowed to
	be imported.
Doffer Comb Assembly for H. & B., T. & S. Cards.	Coiler 10" and 12"
(Imports of parts of coilers will, however, be allowed for conversion purposes or for replacement of individual parts of coiler).	
<i>Note :—</i> (Imports of all the above parts will, however, be allowed in cases of replacements against damage and/or breakage during transit of imports previously licensed and covered by Insurance claims).	
II (b) Spare parts	
Spindles.	
Fluted Rollers.	
Tin Rollers.	
Top Rollers (except for ball bearing top rollers).	
Conversion Materials, the following :	
Band to Tape Conversion :	
Pulley Bracket.	
Tensioning Bracker.	
Tension Shaft with collers.	
Shaft Support Brackers.	
Three to Four Rollers Conversion :	
Roller Stands.	
Cap Bars.	
Fluted Rollers.	
Gearing Units.	
Top Rollers, and	
Thread Bars.	

*Source : Appendix XLV, Import Trade Control Policy, October, 1957
March 1958, Government of India, Ministry of Commerce
and Industry, P-459.

<i>Description</i>	<i>Remarks</i>
Conversion plain bearing to Ball Bearing to tin rollers.	
Components :	
Ball Bearing Pedestals.	
Shafts and Keys.	
Conversion of smaller lift to larger lift. Components :	
Spindles of larger lift, and packings to lift.	
Drafting Zone if necessary or alternatively by lowering spindle rails.	
and	
Tin rollers including brackets to fit with altered position of either of above.	
Conversion from Stationery to Moving Lappet Rails:	
Lappet Rails.	
Pokar rods with shoes.	
Lappet rail support brackets.	
Pokar guide brackets.	
Casablanca High Drafting System :	
Roller Stands.	
Cap Bar Finders.	
Middle Bottom Rollers.	
Back Top Rollers.	
Middle Top Rollers.	
Gearing Units (Draft).	
Gearing Units (Traverse).	
Traverse Rods.	
Front underclearer Rollers.	
Front Top Clearer Rollers.	
Back under clearer Rollers.	
Back Top Clearer Rollers.	
Cap Bar Rods.	
Bank Leather.	

VII Automatic Tensionless Jiggers.

APPENDIX F (II)

TEXTILE MACHINERY SPARE PARTS FALLING UNDER S. NO. 5/III FOR WHICH
LICENCES WILL BE GRANTED TO ESTABLISHED IMPORTERS DURING OCTOBER
1957-MARCH 1958*

Description	Remarks
I (b) Spare parts for Carding Engines :—	
Foot Plates except for cards of H & B and T & S makes.	<i>Ad hoc</i>
II (b) Spare parts	
Rings	<i>Ad hoc</i>
Top Rollers (Ball Bearing Type)	<i>Ad hoc</i> against orders from Actual Users.
Other spare parts (except spindies Fluted Rollers and Tin Rollers).	Do.
VII Ring Travellers	<i>Ad hoc</i> having firm orders from Actual Users.
II (b) Conversion materials, the following articles viz. (Cradles, Saddles and Hooks, Autolevers, Tensers, Hezagonal Bar Brackets, Adjustable Sectors, Front Top Clearers and Brackets. Back under-clearer spring Supports).	Against firm orders from Actual Users to the extent of 60 per cent of their requirements provided firm orders have been placed with indigenous manufacturers for 40 per cent of their requirements.
The following articles, viz. Hexagonal Bars, Fronts, under-clearer springs, back under-clearer springs, bands synthetic E. 10 B-Conversion Materials, S-3 Conversion Materials (except Top and Bottom Rollers) Spares for Dalia Type and other old Models not covered by 500 or A. 500.	<i>Ad hoc</i> having firm orders from actual users.
Sussen High Drafting system :—	
The following articles namely :	
Bottom and top Aprons synthetic rubber. Apron or House Bars Bottom Apron Yoke Spacer Springs Under Clearer Springs (3 types). Ball or Needle Bearing non-detachable loose boss top rollers, without pivot ends.	

*Source : Appendix XLV Import Trade Control Policy, October 1957 March 1958, Govt. of India, Ministry of Commerce & Industry P. 459.

Description

Remarks

Top Spring weighing Bridges or Arms Complete. Gauges for setting the rollers. Round Shaftings (3 types) for cap bar rods; nob sticks, and apron roll-yokes. Bright flat Bars (3 types) for front condensers Traverse motion and weighing bridges. Special Allen Screws and Nuts. Condensers (Front and Back) Cradles Self lubricating non-detachable fixed boss top rollers without pivot ends. Japanese System of Single or Double Apron High Drafting System ;

The following articles are namely :—

Top and Bottom Cradles complete. *Ad hoc* having firm orders from actual users.
 Top and Bottom aprons of synthetic rubber.
 Differential High Draft Gearing.
 Differential Traverse Motion Unit.
 Collector or Condensers.
 Special tenser and cradle holding bars.

V. Loom parts and Accessories :

- | | |
|-------------------------------|----------------------------------|
| 1. Loom Sides | Having firm orders from actual |
| 2. Tap Trees. | users for the following types of |
| 3. Cross Rails. | looms :— |
| 4. Binder Rails | |
| 5. Sley Swords. | 1. Automatic looms; |
| 6. Swing Rails and Bushings | 2. Swivel and lappet looms; |
| 7. Breast Beams. | 3. High Speed narrow fibre |
| 8. Takeup Rollers. | looms ; |
| 9. All Metal Sleys. | 4. Blanket looms ; |
| 10. Crank Shafts and Bushes. | 5. Sheeting looms; |
| 11. Tappet Shafts and Bushes. | 6. Woollen looms; |
| 12. Picking Bowls. | 7. Canvas looms; |
| 13. Picking Tappet Nose Bits. | 8. Tyre Cord looms; and |
| 14. Picking Tappet Shells. | 9. Fustian looms; |
| 15. Picking Tappet Boss. | |
| 16. Picking Tappet Boss Keys. | |
| 17. Picking Shafts. | |
| 18. Tube Yarn Beams. | |
| 19. Beam Flanges. | |

<i>Description</i>	<i>Remarks</i>
20. All parts for Drop Box and Circular Box Motions	
21. Shuttle guards (Complete).	
22. Warp Stop Motions (Complete and Spares).	
23. Drop Pins.	
24. Fringing Motions (Complete and Spares).	
25. Torry Tower Motions (Complete and Spares).	
26. Spring Loaded Drive Pulleys.	
27. Clutch Drive Components.	
28. Dobbies Spares.	
29. Weft Grates.	
30. Weft Forks.	
31. Weft Fork Holders and Screws.	
32. Loom Spindles.	
33. Temples.	
34. Temple Rollers.	
35. Loom Springs all types including Sell and Bow Springs.	
36. Weighing Chain.	
37. Crank Arm Block.	
38. Crank Arm Stop.	
39. Crank Arm Long.	
40. Crank Arm Strap.	
41. Crank Arm Gib.	
42. Crank Arm Cottar.	
43. Balance Wheels.	
44. Brake Wheels.	
45. Crank Wheels.	
46. Tappet Wheels.	
47. Spares for Roper and Bartlett Let-off Motions.	
48. Spares for Take-up Motions other than Pickles.	
49. Spares for Parallel Underpick Motions.	
50. Spares for 2, 3 and 4 Colour Magazine and Weft Replenishing Motion.	
51. Spares for all types of Automatic Looms.	
52. Spares for Swivel and Lappet Looms.	
53. Spares for High Speed Narrow Fabric Looms.	

<i>Description</i>	<i>Remarks</i>
54. Spares for Blanket and Sheeting Looms.	
55. Spares for Woollen Looms.	
56. Spares for Canvas Looms.	
57. Spares for Tyre Cord Looms	Licences granted under Sr. No.
58. Spares for Fustian Looms	5(2) of Part III for October
59. Spares for Dobiebs	57-March 1958, of the Import
60. Spares for all positive types of Shedding Motions	Trade Control Policy will also
61. Beaming papers.	be valid for the import of
62. Jacquard Cards.	these items.
63. Design Cards.	
Weaving Accessories as given in pages 468, 469, 470 and 471.	Licences granted under Sr. No 5 (2) of part III for October 57-March 1958, of the Import Trade Control Policy will also be valid for the import of these items.
Items of loom parts and accessories not mentioned in Annexure 'B' of Appendix XLV against quota licences for S. No. 5(2) of Part III for October 57-March 1958 of the Import Trade Control Policy.	Will be considered on merit in consultation with the Textile Commissioner.

APPENDIX F (III)

TEXTILE MACHINERY SPARE PARTS FALLING UNDER S. NO. 5/III FOR WHICH
LICENCES WILL BE GRANTED TO 'ACTUAL USERS' DURING OCTOBER 1957—
MARCH 1958*

<i>Description</i>	<i>Remarks</i>
I (b) Spare parts for Carding Engines :	
Foot Plates except for Cards of H. & B. and T. & S. makes.	<i>Ad-hoc</i>
Top Flat Chains	<i>Ad-hoc</i>
Other spare parts. (For Spare Parts required for 45" Car- ding Engines).	<i>Ad-hoc</i>
II (b) Spare parts :	
Rings	<i>Ad-hoc</i>
Top Rollers (Ball bearing type)	<i>Ad-hoc</i>
Other spare parts	<i>Ad-hoc</i>
VII Ring Travellers	<i>Ad-hoc</i>

II (b) The following articles namely :—

Cradle, Saddles and Hooks, Autolevers, Tensors, Hexagonal Bar Brackets Adjustable Sectors, Front Top Clearers and Brackets. Back under- clearer spring Supports.	Licences will be granted to Actual-Users or Importers against firm orders from Actual Users for these articles to the extent of 60% of the requirements provided the ap- plicants satisfy the licencing authority that firm orders have been placed with the indigenous manufacturers for 40% of their requirements.
--	--

Note : All the above items complete with screws, bolts, nuts and washers.

*Source : Appendix XLV, Import Trade Control Policy, October 1957—
March 1958, Government of India, Ministry of Commerce and
Industry, P. 459.

Description	Remarks
-------------	---------

The following articles, namely :—

Hexagonal Bars, Fronts under-clearer springs, back under-clearer springs, bands synthetic E. 10 B-Conversion Materials, S-3 Conversion Materials (except Top and Bottom Rollers, Spares for Dalia Type and other old Models not covered by 500 or A. 500.	<i>Ad-hoc</i>
---	---------------

Sussen High Drafting System :—

The following articles, namely :

Bottom and Top Aprons Synthetic rubber.

Apron or Hose Bars.

Bottom Apron Yoke Spacer Springs.

Under Clearer springs (3 types).

Ball or Needle Bearing non-detachable loose boss top rollers, without pivot ends.

Top Spring weighing Bridges of Arms Complete.

Gauges for setting the rollers.

Round Shafts (3 types), for cap bar rods nob sticks, and apron rollyokes.

Bright flat Bars (3 types) for front condensers Traverse motion and weighing bridges.

Special Allen Screws and Nuts.

Condensers (Front and Back)

Cradles.

Self lubricating non-detachable fixed boss top rollers without pivot ends.

Ad-hoc

Japanese System of Single or Double Apron:

High Drafting System :

The following articles namely :—

Top and Bottom Cradles complete.

Top and Bottom aprons of synthetic rubber.

Ad-hoc

Differential High Draft Gearing.

Differential Traverse Motion Unit.

Collector or Condensers.

Special tensor and cradle holding bars.

<i>Description</i>	<i>Remarks</i>
V. Looms Parts and Accessories.	
Loom Sides.	<i>Ad-hoc</i>
Tap Trees	
Cross Rails.	
Binder Rails.	
Sley Swords.	
Swing Rails and Bushings.	
Breast Beams.	
Take-up Rollers.	
All Metal Sleys.	
Crank Shafts and Bushes.	
Tappet Shafts and Bushes.	
Picking Tappet Nose Bits.	
Picking Tappet Shells.	
Picking Tappet Boss.	
Picking Tappet Boss Keys.	
Picking shafts.	

For the following type of looms :—

Automatic looms;	<i>Ad-hoc</i>
Swivel and Lappet looms;	
High Speed narrow fibre looms;	
Blanket looms;	
Sheeting looms;	
Woollen looms;	
Canvas looms;	
Tyre Xord looms; and	
Fustian looms;	
Tube Yarn Beams.	
Beam Flanges.	
All parts of Drop Box and Circular Box Motions.	
Shuttle Guards (Complete).	
Warp Stop Motions (Complete and Spare.).	
Drop Pins.	
Fringing Motions (Complete and Spares).	
Torry Towel Motions (Complete Spares.)	
Spring Loaded Drive Pulleys.	
Clutch Drive Components.	
Dobbies Spares.	

<i>Description</i>	<i>Remarks</i>
Weft Grates.	
Weft Forks.	
Weft Fork Holders and Screws.	
Loom Spindles.	
Temple Rollers.	
Temples	
Loom Springs all types including Swell and Bow Springs.	
Weighing Chain.	
Crank Arm Block.	
Crank Arm Stop.	
Crank Arm Long.	
Crank Arm Strap.	
Crank Arm Gib.	
Crank Arm Cottar.	
Balance Wheels.	
Brake Wheels.	
Crank Wheels.	<i>Ad-hoc</i>
Tappet Wheels.	
Spares for Roper and Bartlett Let- off Motions.	
Spares for Take-up Motions other than Pickles.	
Spares for Parallel Underpick Motions.	
Spares for 2, 3 and 4 colour Maga- zine and Weft Replenishing Mo- tion.	
Spares for all types of Automatic Looms.	
Spares for Swivel and Lappet Looms.	
Spares for High Speed Narrow Fabric Looms.	
Spares for Balanket and Sheeting Looms.	
Spares for Woollen Looms.	
Spares for Canvas Looms.	
Spares for Tyre Cord Looms.	
Spares for Fustian Looms.	
Spares for Dobbies.	
Spares for all positive types of Shed- ding Motions.	
Beaming papers.	
Jacquard Cards.	
Design Cards	

<i>Description</i>	<i>Remarks</i>
Weaving Accessories :	
Tube Beams.	
Weighing Chains.	
Heald Cord.	
Cut Measuring Motions (Mechanical for Measuring Piece Lengths.).	
Perforated Steel Strips.	
Drop Wires (for Warp Stop Motions).	
Serrated Bars for Warp Stop Motions.	
Cables for Warp Stop Motions.	
Reed Hooks.	
Reed Pliers.	
Weavers Combs.	
Weavers Knippers.	
Weavers Scissors.	
Weft Forks.	
Weft Fork Holders.	
Weft Fork Holder Screws.	
Weft Fork Grates (All Types).	
Loom Temples (Rollers and Ring types).	
Loom Temples Rollers.	
Loom Temple Rings.	
Split Chain.	
Split Cutters (Complete).	
Split Needles.	
Drop and Circular Box Cards.	
Card Clips.	
Card Rings.	
Card Plates.	
Loom Springs (Spiral and Flat).	
Selvedge Hooks.	
Selvedge Wires.	
Neck Band Links.	
Wire Motion Links.	
Heald Adjusters.	
Staubli Connecting Adjusters.	
Dobby and Jacquard Driving Chains.	

<i>Description</i>	<i>Remarks</i>
Dobby Connectors. Dobby Connecting Links. Dobby Barrels. Dobby Motion Barrels. All Metal Dobby Lattice and Pegs. Dobby Cord.	
Jacquards :	
Jacquard Machines. Jacquard Machine Driving Motions all types. Jacquard Harness Linen Cord. Jacquard Neck Cord. Jacquard Wire Healds. Comber Boards and Frames. Jacquard Wire for Hooks and Needles. Jacquard Lingoos and Lingoe Rings. Jacquard Cylinders. Lacquard Spring Boxes. Jacquard Needle Boards. Jacquard Guide Hook Blanks. Jacquard Design Paper. Punching Plates for Nacquard Machines. Piano Card Cutting Machine Spares. Sample Cutting Machines. Sample Cutting Machine Knives. Card Lacing Machine Spare Parts. Card Repeating Machine Spare Parts.	
Heald Frames :	
Lifting Hooks. Sliding Hooks. Fixed Hooks. Rod Clips. Spring Hooks. Steel Heald Rods. Drop Pins for Warping Machines.	

APPENDIX G

LIST OF TEXTILE MACHINERY SPARE PARTS PRODUCED BY SMALL-SCALE UNITS
WHICH ARE FOUND BELOW THE STANDARD OF QUALITY EXPECTED BY USERS.*

1. Beam wheel.
2. Change wheel.
3. Crank wheel (50 teeth)
4. Do. (30 teeth)
5. Tappet wheel (100 teeth)
6. Do. (72 teeth)
7. Bottom Shaft wheel.
8. Crank Shafts.
9. Tappet shaft.
10. Picking shaft.
11. Picking shaft clutch (round hole)
12. Do. (square hole)
13. Toothed pick point.
14. Toothed pick plate.
15. Toothed pick boss.
16. Picking nooses.
17. Picking plate.
18. Picking hoses.
19. Taking up roller.
20. Slay sword, fast reed, L.H. for r.h. looms.
21. Do. r.h. for l.h. looms.
22. Do. l.h. for l.h. looms.
23. Do. r.h. for r.h. looms.
24. Slays word, loose reed, lh. for lh. looms.
25. Do. r. h. for r. h. looms.
26. Do. l.h. for r.h. looms.
27. Do. r.h. for l.h. looms.
28. Beam flanges.
29. Shuttle tongues.
30. Flyer pressure.
31. Springs of all descriptions including coil springs and baloon springs.
32. Doby jack shaft.
33. Spindles.
34. Ring frame spindle infer tubes.
35. Spinning rings.
36. Loose bosses.

†Source : Information supplied by the Millowners' Association, Bombay.

- 37. Roller stands.
- 38. Ball bearing pedestals.
- 39. Heart cams.
- 40. Carrier wheel 120 T X 15 T.
- 41. Rackwheel 50 T, l.h. loom.
- 42. Do. r.h. loom.
- 43. Standard wheel.
- 44. Fluted rollers for spinning frames.
- 45. Pinions.
- 46. Conversion materials for spinning frames.
- 47. Copper cylinders for sizing.
- 48. Gear wheels and pulleys.
- 49. Castings of all kinds.

APPENDIX H

BORROWINGS OF SMALL SCALE UNITS (WESTERN REGION)

Centre	Sl. No. of Units	Existing Borrowings				Purpose
		Invest- ment (Rs. lakhs)	Amount (Rs. lakhs)	Rate of Interest per annum	Source	
1	2	3	4	5	6	7
Bombay	1	0.40	0.07	12	Private	Working Capital
Bombay	2	1.00	0.20	N. A.	Private	Do.
Bombay	3	0.75	0.25	N. A.	Private	Do.
Bombay	4	0.64	0.45	N. A.	Private	Working Capital & Machinery.
Bombay	5	3.09	1.00	N. A.	Private	Do.
Bombay	6	1.00	0.44	6-12	Private	
Sub—TOTAL—BOMBAY	6	6.88	2.41			
Ahmedabad	1	0.90	0.02	6	Private	Working Capital
Ahmedabad	2	1.25	0.10	6	Private	Do.
Ahmedabad	3	0.22	0.6	6	Bank & Private	Do.

I		2	3	4	5	6	7
Ahmedabad	.	.	.	.	.	.	Working Capital
Ahmedabad	.	.	4	1.05	0.10	6	Do.
Ahmedabad	.	.	5	2.00	0.16	6	Do.
Ahmedabad	.	.	6	1.20	0.15	4	Do.
Ahmedabad	.	.	7	0.10	0.07	12	Do.
Ahmedabad	.	.	8	1.50	0.20	6	State Finance Corporation
A loan of Rs. 80,000 is sanctioned (Rs. 60,000 for building and Rs. 20,000 for working capital requirements), out of Rs. 20,000 have been received so far.							
Ahmedabad	.	.	9	1.50	0.85	7-8	Working Capital
Ahmedabad	.	.	10	1.90	0.36	12	Do.
Ahmedabad	.	.	11	0.35	0.15	6	Do.
Ahmedabad	.	.	12	0.35	0.05	N.A.	Do.
Ahmedabad	.	.	13	0.32	0.20	1 N.A.	Do.
Ahmedabad	.	.	14	0.75	0.15	24-30	Do.
Sub—Total Ahmedabad							
		14	12.39	2.62			
Indore	.	.	1	2.23	2.00	N.A.] Private	Working Capital
Indore	.	.	2	2.05	0.20	6 1/4 State Govt.	Do.
Sub—Total Indore							
		2	4.33	2.20			
Ujjain	.	.	1	1.69	0.20	4 1/4 State Govt.	Working Capital

I						
	2	3	4	5	6	7
Bangalore	1	0.40	0.03	3	Industrial Coop. Bank	Working Capital
Bangalore	2	0.18	0.35	7-9	Commercial Bank	
Bangalore	3	0.20	0.04	36	Private	Do.
Bangalore	4	1.51	0.14	12	Private	Do.
Bangalore	5	0.65	0.05	24	Private	Do.
Bangalore	6	0.17	0.03	24	Private	Do.
Bangalore	7	3.73	(i) 0.40 (ii) 1.57	12 4 1/2	Private Natio- nal Small In- dustries Corpn.	Purchase of machinery. Working Capital Machinery on Hire Purchase.
Bangalore	8	0.8	(i) 0.15 (ii) 0.08 (iii) 0.19	6 1/4 12 4 1/2	Industr Co-op. Bank Private National Small Industries Corpn.	Purchase of land & construction of bldg. Machinery on Hire-Purchase
Bangalore	9	0.40	0.11	4 1/2	Do.	Do.
Bangalore	10	0.40	0.05	4 1/2	Do.	Do.
Bangalore	11	0.04	0.16	4 1/2	Do.	Do.
Bangalore	12	1.28	0.28	4 1/2	Do.	Do.
Sub-Total Bangalore	12 Units	10.76	3.63	..	..	..

1	2	3	4	5	6	7
Total : Bombay State (Bombay & Ahmedabad) . . .	20	19.27	5.03			
Total : M.P. State (Indore & Ujjain)	3	0.02	2.40			
Total : Mysore State (Bangalore)	12	10.76	3.63			
Grand Total : Western Region	31	36.05	11.06			

Note :—The cost prices of machinery received through National Small Industries Corporation, on hire-purchase, minus the deposits paid by units to N.S.I.C., have been treated as borrowings.

Source :—Information supplied by Manufacturing Units.

APPENDIX I

CREDIT REQUIREMENTS OF SMALL SCALE UNITS (WESTERN REGION)

Centre	Sl. No. of Units	Invest- ment (Rs. lakhs)	Existing Borrow- ings (Rs. lakhs)	Credit Requirements	
				Amount (Rs. lakhs)	Purpose
I	2	3	4	5	6
<i>Bombay State</i>					
Bombay	.	.	.	.	.
Bombay	1	0.40	0.07	0.30	For purchase of machinery
Bombay	2	0.75	0.25	0.25	Working Capital
Bombay	3	3.09	1.00	1.00	For purchase of machinery
Sub-Total Bombay	3	4.24	1.32	1.55	
<i>Ahmedabad</i>					
Ahmedabad	1	0.10	0.07	0.10	Working Capital
Ahmedabad	2	0.23	Nil	0.20	Working Capital
Ahmedabad	3	1.50	0.20	0.60	For Buildings
Ahmedabad	4	1.50	0.85	0.50	Working Capital

I	2	3	4	5	6
Ahmedabad	5	0.35	0.15	0.20	Working Capital
Ahmedabad	6	0.10	Nil.	0.04	For machinery
Ahmedabad	7	1.25	Nil.	5.00	For machinery and Working Capital
Ahmedabad	8	0.03	Nil.	0.10	For machinery
Ahmedabad	9	0.17	Nil.	0.20	For machinery and Working Capital
Ahmedabad	10	0.35	0.05	0.10	Working Capital
Ahmedabad	11	1.00	Nil.	0.50	For machinery (50%) Working capital (50%)
Ahmedabad	12	0.22	Nil.	0.25	Working capital
Ahmedabad	13	0.75	0.15	0.25	Working capital
Ahmedabad	14	0.20	Nil.	0.20	For Building
Ahmedabad	15	0.05	Nil.	0.04	For machinery
Ahmedabad	16	0.16	Nil.	0.15	For land & building
Ahmedabad	17	0.37	Nil.	0.50	For machinery
Ahmedabad	18	0.22	Nil.	0.05	For working capital
Ahmedabad	19	0.47	Nil.	0.15	Working Capital
Ahmedabad	20	0.15	Nil.	0.10	For machinery
Ahmedabad	21	0.45	Nil.	0.30	For Buildings
Ahmedabad	22	1.68	Nil.	0.15	For machinery
Ahmedabad	23	0.90	0.02	0.35	Working Capital and Machinery
Ahmedabad	24	0.22	0.06	0.10	Working capital
Ahmedabad	25	0.80	Nil.	0.50	For fixed and working capital
Sub-Total Ahmedabad	25	13.22	1.55	10.63	

	1	2	3	4	5	6
<i>Madhya Pradesh</i>						
Indore	.	.	1	2.28	2.00	1.00 Working Capital
Indore	.	.	2	0.15	0.20	0.10 For machinery
Indore	.	.	3	0.24	Nil.	0.10 For machinery
Indore	.	.	4	3.35	Nil.	1.00 For machinery and working Capital
Indore	.	.	5	0.21	Nil.	0.05 Working Capital
Sub-Total Indore	.	.	5	6.23	2.20	2.25
<i>Ujjain</i>						
Ujjain	.	.	1	1.25	Nil.	1.00 For machinery for clock manufacture
Ujjain	.	.	2	1.69	0.20	0.03 Do.
Sub-Total Ujjain	.	.	2	2.94	0.20	1.03
<i>Mysore</i>						
Bangalore	.	.	1	0.40	0.03	0.10 Working Capital
Bangalore	.	.	2	0.85	Nil.	0.10 Working Capital
Bangalore	.	.	3	1.18	0.35	0.25 Working Capital

1	2	3	4	5	6
Bangalore	4	0.40	Nil.	0.50	For building (0.05) For machinery (0.25) For Working Capital (0.20)
Bangalore	5	0.20	0.04	0.10	Working Capital
Bangalore	6	0.15	Nil.	0.10	Working Capital (0.05) Machinery (0.05)
Bangalore	7	0.65	0.05	0.20	Working Capital
Bangalore	8	0.17	0.03	0.10	Do.
Bangalore	9	3.73	0.40	1.00	Do.
Bangalore	10	3.32	Nil.	0.10	Do.
Bangalore	11	0.80	0.23	0.20	Working Capital (0.10) Machinery (0.10)
Sub-Total Bangalore	11	8.85	1.13	2.75	
Total Bombay State	28	17.46	2.87	12.18	
Total M. P. State	7	9.17	2.40	3.28	
Total Mysore State	11	8.85	1.13	2.75	
Grand-Total Western Region	46	35.48	6.40	18.21	

Source :—Information supplied by manufacturing units.

GMGIPND—L (NS)—31 D.C.S.S.I.—16-10-58—2,000

List of Analysis & Planning Reports—(contd.)

40. Padlocks (Southern Region).
41. Beam Scales (Southern Region).
42. Hand Tools (Eastern Region).
43. Electrical Porcelain Wares (Low Tension) (Eastern Region).
44. Hand Tools (Northern Region).
45. Soap Industry (Southern Region).
46. Builders' Hardware (Eastern Region).
47. Glass Beads (Western Region).
48. Domestic Utensils (Southern Region).
49. Glass Beads (Southern Region).
50. Scientific Glass Apparatus Industry (excluding Ampules & Phials) (Western Region).
51. Plastic & Rubber Insulated Wires (Northern Region).
52. Wood Screws, Wire Nails & Panel Pins (Southern Region).
53. Wood Screws, Wire Nails & Panel Pins (Northern Region).
54. Diesel Engines (Stationary type) (Northern Region).
55. Industrial Fasteners (Western Region).
56. Sanitary Fittings (Southern Region).
57. Machine Tools (All India).
58. Glass Scientific Apparatus (Eastern Region).
59. Industrial Fasteners (Northern Region).
60. Fruit & Vegetable Preservation & Canning Industry (All India)
61. Beam Scale (Eastern Region).
62. Industrial Fasteners (Southern Region).
63. Cutlery (Southern Region).
64. Umbrella Ribs (All India).
65. Sewing Machines & Parts Industry (Western Region).
66. Domestic Utensils (Northern Region).
67. Plastic & Rubber covered Wires (Western Region).
68. Sewing Machines & Parts (Southern Region).
69. Pipe Fittings (Southern Region).
70. Leather Footwear (Western Region).
71. Umbrella Assembly Industry (Southern Region).
72. Paint, Varnish & Lacquer Industry (All India).

LIST OF SMALL INDUSTRIES SERVICE INSTITUTES

1. Small Industries Service Institute, 56, Sunder Nagar, New Delhi.
2. Small Industries Service Institute, 20 Rutland Gate, Madras.
3. Small Industries Service Institute, 4 Camac Street, Calcutta.
4. Small Industries Service Institute, 40/40A Cawasjee Patel Street, Fort, Bombay-1.
5. Small Industries Service Institute, B. XV. 1679, Ferozepur Road, Ludhiana.
6. Small Industries Service Institute, 113/80, Swaroop Nagar, Kanpur.
7. Small Industries Service Institute, Brojkishore Path, Patna.
8. Small Industries Service Institute, Darpan House, Chandni Chowk, Cuttack.
9. Small Industries Service Institute, Bharalumukh, Gauhati.
10. Small Industries Service Institute, Govindram Sexaria Technical Institute Building, Opposite 'Nehru Park', Indore.
11. Small Industries Service Institute, Near Police Parade Grounds, Trivandrum.
12. Small Industries Service Institute, 193, 6th Cross Road, Gandhi Nagar, Bangalore-9.
13. Small Industries Service Institute, Iftakar Mansion, 79, Azambad, Hyderabad.
14. Small Industries Service Institute, Ismail Road, Jaipur.
15. Small Industries Service Institute, School of Designs Buildings, Karan Nagar, Srinagar.
16. Small Industries Service Institute, 416, Mandi Syed Khan, Agra.
17. Small Industries Service Institute, Sahakar Bhawan, Trikor Bagicha, Rajkot.
18. Small Industries Service Institute, 15 Colying Road, Allahabad.
19. Small Industries Service Institute, Bachi Lodge, Club Road, Hubli.